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FOR

1841 AND 1842.

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BRITISH MUSEUM

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OBSERVATIONS

IN

MAGNETISM AND METEOROLOGY,

MADE AT

MAKERSTOUN IN SCOTLAND,

IN THE OBSERVATORY OF

GENERAL SIR T. M. BRISBANE, BART.,

G.C.B., G.C.H., D.C.L., LL.D., COR. MEM. INST. FR., PRES. R.S.E., F.R.S., F.R.A.S., H.M.R.I.A., &c. &c.

1841 AND 1842.

UNDER THE DIRECTION OF

E. RUSSELL, Esq., IN 1841, AND OF JOHN A. BROUN, Esq., IN 1842.

THE WHOLE EDITED BY

JOHN A. BROUN, Esq.

EDINBURGH:
PRINTED BY NEILL AND COMPANY.

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CONTENTS.

PAGE

PREFACE, ... vii

INTRODUCTION—

Description and Position of the Observatory, ... ix
Personal Establishment, ... x

MAGNETICAL INSTRUMENTS—

Declinometer—

Description of the Declinometer, ... xi
Value of the Scale Divisions, ... xii
Reading for Magnetic Axis, ... xiii
Effect of Bifilar and Balance Magnets, ... xiv
Effect of Copper Ring, ... xv
Suspension Thread and its Torsion Force, ... xvi
Values of $\frac{H}{F}$, ... xvi
Facts relating to Suspension Threads, ... xvii
Absolute Declination, ... xix
Method of Observing, ... xxiii

Bifilar Magnetometer—

Description of the Instrument, ... xxiii
Constants for the Reduction of Observations after altering the Reading of the Torsion Circle, ... xxv
Adjustments, ... xxv
Value of Scale Divisions, ... xxvi
Times of Vibration, ... xxviii
Mode of Observing and Reductions, ... xxix
Values of k and q, ... xxx
Sources of error in determining the Temperature of the Magnet, ... xxx
Absolute Horizontal Intensity, ... xxxi

Balance Magnetometer—

Description of the Instrument, ... xxxii
Value of Micrometer Divisions, ... xxxiii
Deviation of Magnetic Axis from the line joining the Bisection Crosses, ... xxxiv
Times of Vibration in a Horizontal Plane, ... xxxv
Times of Vibration in a Vertical Plane, ... xxxvi
Effect of other Magnets, ... xxxvii
Observations and Reductions, ... xxxvii
Values of k and q, ... xxxix

Page

Observations for the Temperature Corrections—

Method of Observation, xxxix

For the Bifilar Magnet, xli

For the Balance Magnet, xlii

New Method of determining the Temperature Correction, xliv

Inclinometer—

Description of Instrument, and Method of Observing, xlv

Observations in different Azimuths, xlvi

METEOROLOGICAL INSTRUMENTS.

Barometer—

Description of the Instruments used, xlvii

Comparisons with the Royal Society's Standard, xlvii

Thermometers—

Positions of the Thermometers, xlvii

Corrections of the Thermometers to the Standard, xlix

Rain Gauges—

Positions of the Gauges, xlix

Anemometer—

Description of the Instruments, l

State of the Sky—

Mode of Observation, li

General and Recapitulatory Remarks—

Stove, li

Clock, li

Time used, li

Times of Observations for each Instrument, li

Initials of Observers for each Hour on the Term-days, lii

How to obtain the Absolute Declination from the Observations, lii

Remarks on the Reductions and Abstracts, lii

MAGNETICAL OBSERVATIONS—

DAILY OBSERVATIONS OF MAGNETOMETERS, 2

TERM-DAY OBSERVATIONS OF MAGNETOMETERS, 22

EXTRA OBSERVATIONS OF MAGNETOMETERS, 50

OBSERVATIONS OF MAGNETIC DIP, 62

OBSERVATION OF ABSOLUTE HORIZONTAL INTENSITY, 66

METEOROLOGICAL OBSERVATIONS—

DAILY METEOROLOGICAL OBSERVATIONS, 68

TERM-DAY AND EXTRA METEOROLOGICAL OBSERVATIONS, 110

REMARKS ON THE WEATHER, 118

ABSTRACTS OF THE RESULTS OF THE MAGNETICAL OBSERVATIONS—

ABSTRACTS FOR THE MAGNETIC DECLINATION, 136

ABSTRACTS FOR THE HORIZONTAL FORCE, 140

	Page
Abstracts for the Vertical Force,	145
Abstracts for Disturbances,	152
Abstracts for the Magnetic Dip,	154
Abstracts for the Total Intensity,	156

ABSTRACTS OF THE RESULTS OF THE METEOROLOGICAL OBSERVATIONS—

Abstracts for the Barometer,	158
Abstracts for the Thermometers,	161
Abstracts for the Aqueous Vapour in the Atmosphere,	162
Abstract for the Force of Wind,	164
Abstract for the Quantity of Clouds,	164
Abstract for the Rain Gauges,	165

ERRATA.

Introduction, page ix., foot-note, *for* simultaneous at *read* simultaneous observations at.
— — x., line 6, *for* Magnetomers *read* Magnetometers.
— — xxv., line 5, *for* cos $v + \beta$ *read* cos $(v + \beta)$.

Enter under No. 34, page xxxi. Introduction, the following :—

The effect of the Declination magnet on the Bifilar magnet is zero ; the effect of the Balance magnet N. pole E. on the Bifilar magnet is $-3·15$ Sc. div. This correction has not been applied to the observations.

Enter before Table 15, page xxxv. Introduction :—

The relative moments of the three magnets were determined by placing their centres successively on the same point at right angles to a spare magnet suspended in the Declinometer box and observing the deflections ; the following are their ratios—

Declination : Bifilar : Balance = 1·000 : 0·828 : 0·185.

Introduction, page xxiv., line 16, and page xl., line 27, *for* K *read* *k*.
— — xlvi., last line of Table 22, *for* 21 *read* 71.

Sept. 26^d 23^h 1841, page 4, Balance Thermometer, *for* 5·13 *read* 51·3.
Aug. 6^d 7^h 1842, — 58, *for* 29·43 *read* 129·43.
Oct. 29^d 20^h 1841, — 74, transpose the observations under Max. and Min.
July 27^d 20^h 1842, — 93, *for* 6·68 *read* 66·8.
— 100, carry foot-note to page 101.

Introduction, page lii., No. 79, *for* 24° *read* 23°.

PREFACE.

AMONGST the various Systems of Observation undertaken in 1839 by the British and other Governments, by the East India Company, and by private enterprize, for the advancement of our knowledge of Terrestrial Magnetism, none were directed to any point in Scotland; although this country, from its extreme north-westerly position in Europe, had been regarded by Professor GAUSS, the originator of this new movement in Science, as one of the most interesting localities for Observation.

General Sir THOMAS MAKDOUGALL BRISBANE, President of the Royal Society of Edinburgh, undertook to supply, at his own expense, the deficiency thus occasioned; and instituted, at his residence of Makerstoun, in Roxburghshire, a Magnetical Observatory on a scale similar to that of the Public Establishments, and of which a detailed account will be found in the Introduction to this volume of the Observations.

The personal establishment, originally confined to one observer, Mr E. RUSSELL, with occasional assistants, was gradually extended, under the superintendance of Mr J. A. BROUN, to three permanent observers, who, it is believed, have carried on as extensive a course of observation as it is possible for that number of individuals to perform, with the additional labours of reducing them and superintending the Press.

Sir THOMAS BRISBANE having expressed his wish that the Observations at the Makerstoun Observatory should appear in the Transactions of the Royal Society of Edinburgh, and be distributed along with them to the Fellows, both Ordinary and Foreign, the Council of the Royal Society willingly acceded to the proposal, and desired to mark their sense of the national importance of Sir THOMAS BRISBANE's undertaking by contributing from the Funds of the Society towards the expense of publication.

The present volume, forming the Seventeenth of the Society's Transactions, is the First of the Makerstoun Observations.

JAMES D. FORBES, *Sec. R.S. Ed.*

General Sir T. M. Brisbane takes this opportunity of acknowledging the obligation which he feels himself under to **Professor Forbes**, for his advice on the formation and continuance of the Makerstoun Observatory.

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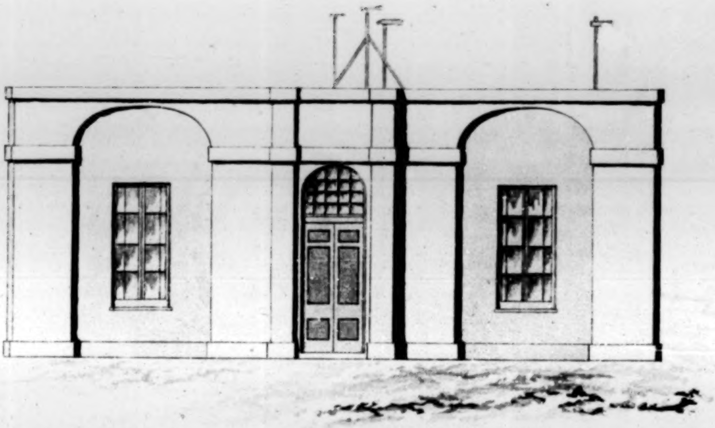
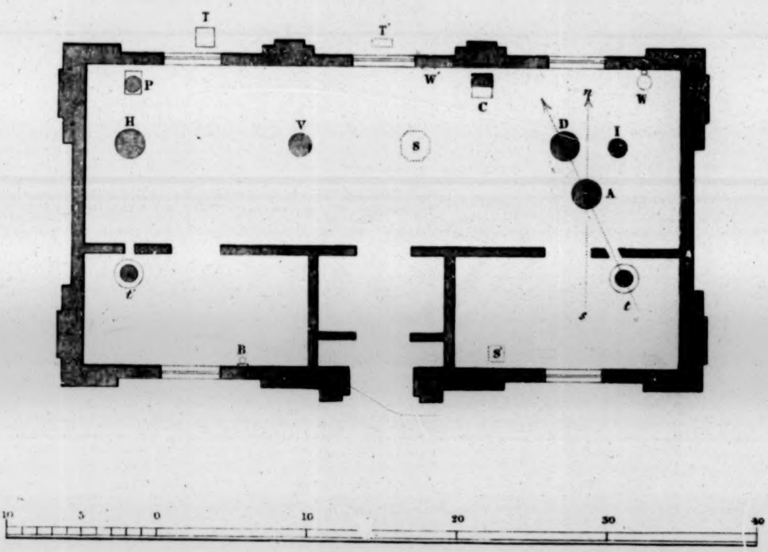
MAKERSTOUN MAGNETIC OBSERVATORY.

PLATE I. Royal Soc. trans. Edin. Vol. X





W. & A. K. Johnst

INTRODUCTION.

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§ 1. Description of the Observatory, &c.

1. The Magnetic Observatory, Makerstoun, was erected in the beginning of 1841. The geographical co-ordinates are—

Latitude, ...	55° 34′ 45″ N.
Longitude, ...	$0^{h}\ 10^{m}\ 3{\cdot}5^{s}$ W.

Height of the cistern of the barometer above mean water at Berwick, 213 feet.[*]

The Magnetic Observatory is situate nearly on the summit of a ridge, which occupies the left or northern bank of the Tweed; being 540 feet distant from, and 80 feet above, that river.

The Astronomical Observatory is upon the highest part of the ridge, 140 feet due west of the Magnetic Observatory.

2. A fair horizon is seen from the Observatory hill, being bounded about 10 miles to the east by a slightly swelling ground, which to south-east seems to join the Cheviot Hills. The view is bounded about half-a-mile to south and south-west by a ridge, forming the right bank of the Tweed; about 500 feet to the south-west and north-west by masses of trees in the Makerstoun grounds; and from 1 to 3 miles to north-west, north, and north-east, by an elevated ridge, which forms to some extent the northern boundary of the valley of the Tweed.

From north, by the east to the south, the elevation of the horizon, with a slight exception, is under 2°; from north to north-west, increasing from 2° to 4°; from north-west to south-west, the tops of the trees are elevated from 5° to 8°; and from south-west to south the elevation is under 4°. The highest point of the Cheviots, which is 2656 feet above the level of the sea, is about 18 miles to the ESE.

3. The Observatory Hill, it is believed, is composed of felspathic trap. The Tweed, immediately to the south, and for a mile to the east and west, passes through this rock. It does not appear on any part of the hill; but seems, as far as the

[*] The height of a point in the Astronomical Observatory was obtained by connecting it with the levels made from Berwick to the opposite bank of the Tweed, for a projected railway from Berwick to Melrose. Barometrical observations at Holy Island and at Berwick by Sir T. M. Brisbane, and at the Edinburgh Observatory by the late Professor Henderson, compared with simultaneous at Makerstoun, have verified the above determination.

opening for a foundation to the Observatory would shew, to be covered with masses of rolled pebbles, and boulders of greywacke and trap.

4. The Observatory is rectangular in its plan, 40 by 20 feet internally. It is formed of wood; copper nails were used; and iron carefully excluded from every part of the structure.

The pillars for the Magnetomers and Telescopes are of stone, from 22 inches to 19 inches in diameter, and placed upon excellent stone foundations, completely disconnected with the floor, or any part of the building. There are two windows to the south, with the door between; and three to the north, which open like folding doors.

5. By a reference to the plan and elevation, the following details will be understood:—

The dimensions of the principal apartment are, 40 feet long, 12 feet broad, and 12 feet high. The two ante-rooms are each 15 feet by 7.

The instruments, &c., are indicated in the plan as follows:—

D, The Declinometer.
  t, Its Reading Telescope.
  A, The Azimuth Circle and Transit.
H, The Bifilar or Horizontal Force Magnetometer.
  t′, Its Reading Telescope.
  P, A Pillar for a Collimator (not used).
V, The Balance or Vertical Force Magnetometer.
I, The Inclinometer.
B, The Standard Barometer.
W, Adie's Anemometer.
W′, The Wind Vane Dial-Plate.
T, The Thermometer Case after January 22. 1842.
T′, The Thermometer Case before January 22. 1842.
C, The Mean Time Clock.
S, The Copper Stove after Jan. 11. (?) 1842.
S′, The Copper Stove before Jan. 11 (?) 1842.
n s, The Astronomical Meridian.
D *t*, The Magnetic Meridian.

The two Vanes to the right in the elevation are those for the direction and force of wind; the other two were added after 1842.

§ 2. Personal Establishment, &c.

6. Mr Russell was appointed by Sir Thomas Brisbane, in the spring of

1841, to conduct the Observatory, and resigned in April 1842. Mr RUSSELL is, therefore, only responsible for the observations up till that period.*

During term-days, Mr RUSSELL was assisted by Mr P. ADIE of Edinburgh, Mr HOGG of Kelso, and myself. After the April term 1842, Mr DODS, teacher of Makerstoun parish school, replaced Mr RUSSELL in the term observations; and after the term 1842, Mr CHISHOLM, teacher of Maxton parish school, replaced Mr ADIE.

The Daily and Extra Observations, and Observations of Adjustment, till the end of April 1842, were made by Mr RUSSELL, assisted in some of the latter by me.

MAGNETICAL INSTRUMENTS.

§ 3. DECLINOMETER.

7. The Declination Magnetometer was obtained from GRUBB of Dublin. The Magnet is 15 inches long, $\frac{7}{8}$ths of an inch broad, and $\frac{1}{4}$th inch in thickness. It fits into a stirrup, whose two eyes receive an axle attached to the suspension thread. At the north extremity, it carries a scale divided on glass; at the other, about 12 inches distant (its focal length), a lens of $1\frac{1}{4}$ inch diameter.

A marble slab cemented to the top of the Declinometer-Pillar, carries two copper tubes, which are connected at the top by a wooden tie, bearing the Torsion-Circle and Suspension Apparatus.

The Suspension Thread, formed of sixteen fibres of untwisted silk, is enclosed by a glass tube; and the Magnet, with copper ring, for checking the vibrations, by a cylindrical box, with glass lids. There are two glazed apertures in the sides of the box, one to the north, where a small mirror throws light upon the glass scale, the other to the south between the Lens and the Reading Telescope.

The Reading Telescope is fixed to its pier. By noting the coincidences of the Scale divisions with the vertical wire at the eye-glass of the telescope, the variations of the position of the freely suspended magnet are obtained.

---

* Mr RUSSELL studied the methods of observing, &c., at Dublin, under Professor H. LLOYD, to whom he was also indebted for his attention to various difficulties which were subsequently met with. To Professor LLOYD I also owe my acknowledgments for his attention to several of my own communications.

Professor LLOYD, at the desire of Sir THOMAS BRISBANE, likewise examined the observations made by Mr RUSSELL and by myself till October 1842.

To Mr AIRY, Sir THOMAS BRISBANE's thanks, and my own, are due, for the facilities afforded me at the Royal Observatory, Greenwich, in April 1842, of acquiring a knowledge of the methods adopted there. I should not omit to mention my obligations to Lieut.-Col. SABINE, and Professor FORBES, for their advice on some occasions.

8. Between the Magnetometer and Telescope piers is the pier of the Theodolite, used for determinations of the Absolute Declination. The Theodolite is by TROUGHTON; the circle is 15 inches in diameter, is divided to 5 minutes, and reads with the verniers to 5 seconds. There are three Verniers; by some accident, the circle has probably been slightly flattened on one side, as there the verniers enter rather too much upon the graduations. The error due to this, however, is small.

The lines of collimation of the Theodolite and Reading Telescopes coincide when the middle wire of the former is made to coincide with the vertical wire of the latter. The circle is retained in the same position on its pier, but the telescope is removed, except when required for Observations of Absolute Declination.

9. Following are the determinations of the data requisite in reducing the observations of the Declinometer.

10. Value of the Scale Divisions in angular measure.

A scale of 300 divisions was used in 1841, and of 500 divisions afterwards. The Magnet having been fixed on blocks, the middle wire of the Theodolite Telescope was made to coincide with various scale divisions. At each coincidence, one vernier of the circle was read.

TABLE 1.—Value of the Divisions of the Short Scale in the Declinometer during 1841.

Scale Division.	Theodolite Reading.	Scale Division.	Theodolite Reading.	Value of 100 Scale Divisions.
	° ′ ″		° ′ ″	° ′ ″
50	115 4 5	150	113 56 55	1 7 10
60	114 57 20	160	113 50 10	1 7 10
70	114 50 35	170	113 43 30	1 7 5
80	114 43 55	180	113 36 45	1 7 10
90	114 37 10	190	113 30 0	1 7 10
100	114 30 30	200	113 23 20	1 7 10
110	114 23 45	210	113 16 35	1 7 10
120	114 17 5	220	113 9 55	1 7 10
130	114 10 20	230	113 3 10	1 7 10
140	114 3 40	240	112 56 30	1 7 10
150	113 56 55	250	112 49 50	1 7 5

The mean value of 1 Scale division is 0′·6715.

TABLE 2.—Value of the Divisions of the Long Scale in the Declinometer during 1842.

Scale Division.	Theodolite Reading.	Scale Division.	Theodolite Reading.	Value of 100 Scale Divisions.
140	4° 51′ 30″·0	240	3° 44′ 22″·5	1° 7′ 7″·5
150	4 44 47·5	250	3 37 40·0	1 7 7·5
160	4 38 5·0	260	3 30 57·5	1 7 7·5
170	4 31 20·0	270	3 24 15·0	1 7 5·0
180	4 24 37·5	280	3 17 32·5	1 7 5·0
190	4 17 55·0	290	3 10 50·0	1 7 5·0
200	4 11 12·5	300	3 4 7·5	1 7 5·0
210	4 4 30·0	310	2 57 25·0	1 7 5·0
220	3 57 47·5	320	2 50 40·0	1 7 7·5
230	3 51 5·0	330	2 44 0·0	1 7 5·0
240	3 44 22·5	340	2 37 17·5	1 7 5·0
250	3 37 40·0	350	2 30 35·0	1 7 5·0
260	3 30 57·5	360	2 23 50·0	1 7 7·5

The mean value of 1 Scale division is 0′·6710.

11. Determination of the point of the scale at the magnetic axis of the bar, or the zero of the scale.

June 28. 1841. Magnet with short scale.

The torsion having been removed from the suspension thread, and the Reading Telescope fixed temporarily, readings were made, the magnet being direct and also inverted (the scale and lens below the magnet).

TABLE 3.—Reading of the Short Scale for the Magnetic Axis of the Declination Magnet.

Position of Magnet.	Scale Reading.	Mean of each alternate two.	Reading for Magnetic Axis.
Direct	140·3		
Inverted	159·1	139·9	149·50
Direct	139·6	159·3	149·45
Inverted	159·5	139·1	149·30
Direct	138·5	159·9	149·20
Inverted	160·3	137·8	149·05
Direct	137·1		

The mean reading for magnetic axis=149·3 Sc. div.

July 12 till 26. 1841. Effect of Bifilar and Balance Magnets (See Table 5), +0·3 Sc. div., corrected zero 149·0 Sc. div.

July 27 till Dec. 28. 1841. Effect of Bifilar and Balance Magnets (See Table 5), −0·3 Sc. div., corrected zero 149.6 Sc. div.

TABLE 4.—Reading of the Long Scale for the Magnetic Axis of the Declination Magnet.

Position of Magnet.	First Series.			Second Series.			Third Series.		
	Scale Reading.	Mean of each alternate two.	Reading for Magnetic Axis.	Scale Reading.	Mean of each alternate two.	Reading for Magnetic Axis.	Scale Reading.	Mean of each alternate two.	Reading for Magnetic Axis.
Inverted				256·5					
Direct	240·3			253·9	257·4	255·65	257·7		
Inverted	270·8	239·4	255·10	258·3	251·2	254·75	252·5	257·4	254·95
Direct	238·6	271·7	255·15	248·6	259·4	254·00	257·1	252·8	254·95
Inverted	272·6	237·9	255·25	260·5	251·4	255·95	253·1	257·6	255·35
Direct	237·1	273·6	255·35	254·1	256·4	255·25	258·1		
Inverted	274·5	237·6	256·05	252·3	258·1	255·20			
Direct	238·0			262·0					

Mean reading for magnetic axis,	first series,	255·38
	second series,	255·13
	third series,	255·08

Mean of all the partial results, 255·21.

Correction for effect of Bifilar and Balance Magnets (Table 5) +0·3 Sc. div., adopted zero for 1842, 255·5 Sc. div.

12. Corrections to be applied to the observed positions of the Magnet to obtain the true declination.

13. Effect of the Balance and Bifilar Magnets on the Declination Magnet.

TABLE 5.—Effects of the Bifilar and Balance Magnets on the Declination Magnet.

N. end of Magnet.		Declination Reading.	Effect of Magnet.	
Bifilar.	Balance.		Bifilar.	Balance.
W.	E.	143·30		0·96
W.	W.	141·38	0·59	
E.	W.	142·57		0·95
E.	E.	144·47	0·70	
W.	E.	143·07		0·89
W.	W.	141·28		

Mean effect of Bifilar magnet on Declination magnet N. pole W. = −0·64 Sc. div.

……………… Balance ……………………………… N. pole E. = +0·94 Sc. div.

Sum = +0·30 Sc. div.

After July 30. 1841, the north poles of the Bifilar and Balance Magnets were to the west and east respectively: before that date they were in the reverse positions; consequently,

Joint effect of Bifilar and Balance Magnets on the Declination Magnet

before July 30. 1841 = − 0·30 Sc. div.
after . . . . . . = + 0·30 Sc. div.

14. Effect of the Copper Ring.

No observations were made to determine the error due to the copper ring till 1843. Previously, however, it had been placed over the Balance Magnet which indicates immediately the presence of the smallest quantity of iron; but the needle remained motionless.

In 1843, series of observations were made by reading the position of the Declination Magnet with the copper ring, in its place and away; the results were contradictory, being, for the effect of the ring, from —1.82 to + 1.89 Sc. div., and lead to the belief that the effect must be small, if anything. The differences, it was presumed, were due to the generation of currents of air by lifting and shutting the box, to the changes of Declination occurring at the time, and to the greatly increased arc of vibration when the ring was removed.

In July 1843, after an extra Declinometer had been obtained, the results were equally contradictory, the differences were attributed to aerial currents as before,—the result of the best observations being nearly zero: the ring was therefore allowed to remain.

In October 1844, a careful series of observations was made with all the guards of double boxes, &c., when it was found from the consistent results, that the effect of the copper ring when in its usual position was equivalent to about — 1·0 Sc. div. It is now believed that the differences of the partial results obtained in 1843 were to some extent due to slight changes in the position of the ring in the different observations.*

The observations for the effect of the copper ring are reserved for the Introduction to the Volume for 1843. No correction has been applied for its effect in 1841 and 1842, as the position of the ring must have varied slightly during that period. It is believed that the effect must have been between about — 0′·5.

15. Error of Collimation of the plane glass in the south side of the Declinometer-box.

No observation was made to determine this error till 1843. The magnet resting on blocks, the glass being in its usual position, reversed, and away, no difference could be detected in the scale readings.

---

[*] It should be remarked that the method of taking away and replacing, recommended in the Report of the Royal Society, does not seem that best fitted for determining the *existence* of a disturbing cause. During the Observations of 1844, it was found, that, by slightly varying the position of the ring, the effect might be much magnified, or reduced to zero.

16. The Suspension Thread and its Torsion Force.

The errors due to the torsion of the suspension thread are produced in two ways. First, by the magnet moving out of the plane of detorsion; secondly, by the variation of this plane, due generally to the varying humidity of the atmosphere.* The greatest change of declination from the mean has been within 2°; the greatest correction for the torsion from this change would be within 8′. The approximation of the line of detorsion to the magnetic meridian is probably seldom within 2°; it is found on trial to have deviated from 5° to 40° from the magnetic meridian, and is so variable as to swallow up completely the changes from varying declinations.

If the magnet be deflected u' by turning the arms of the torsion circle w', the torsion is $w'-u'$, the ratio

$$\frac{u'}{w'-u'} = \frac{\text{coefficient of torsion force}}{\text{magnetic force} \times \text{moment of free magnetism}} = \frac{\text{H}}{\text{F}}$$

is the quantity by which the deviations of the magnet from the plane of detorsion should be multiplied, to obtain the decrements due to torsion force. If n be the observed deviation, $\left(1+\frac{\text{H}}{\text{F}}\right)n =$ the true deviation.

The observations for the values of $\frac{\text{H}}{\text{F}}$ are given below; no use has been made of them for this correction, from the reason given above.

TABLE 6.—Values of $\frac{\text{H}}{\text{F}}$.

Date of the Observation.	$w=90°$	$\frac{\text{H}}{\text{F}}$	Period to which the factor $1+\frac{\text{H}}{\text{F}}$ applies.
	u'		
1841.	′		
July 8	4·63	0·00086	July 8—20
July 17	4·63	0·00086	
July 30	5·40	0·00100	July 26—Dec. 4
Dec. 28	4·91	0·00091	Dec. 22—Jan. 19
1842.			
March 3	5·36	0·00099	Jan. 21—May 24
June 6	4·74	0·00088	May 24—June 6
June 18	4·00	0·00075	June 7—June 26
June 21	4·29	0·00080	June 7—June 26
June 27	4·14	0·00077	June 27—July 18
Aug. 22	8·73	0·00162	July 20—Dec. 31

17. The second and most important error due to the torsion force, is from the varying plane of detorsion. Unless when the period and extent of change is known,

---

* A thick cotton cover was put over the whole Declinometer in January 1844, which seems to remedy this very much.

this can only be corrected practically. The magnet being removed, and the brass bar inserted (without any directive magnet), the extremities of the arc of vibration were observed; the marble slab beneath having radii drawn for every 5°, the deviation of the position of detorsion from the magnetic meridian is obtained, and the arms of the torsion-circle turned an equal number of degrees in the opposite direction. Much care and time was bestowed on these observations, so as to eliminate the torsion as completely as possible. Considerable annoyance was experienced from the breaking of the fibres of the first suspension-threads. They were formed of 16 fibres, as recommended in the Royal Society's Report. The necessity of removing the declination magnet during the observations of inclination, the difficulty of holding the thread with a force exactly equal to the weight of the magnet, and the consequent liability to strain, or, by loosening, to alter the disposition of the fibres, were frequent sources of torsion.

18. The principal facts relating to the suspension-threads are as follow:—

May 18. 1841. The suspension-thread was formed of 16 fibres of untwisted silk; the torsion was removed approximately for the observations of adjustment.

June 29. 1841. One of the fibres found broken; it was removed, and the torsion eliminated. The brass bar was suspended for several days, and was sometimes on one, sometimes on the other side of the magnetic meridian; attributed to moisture.

July 11. 1841. Before this date the torsion had been removed with much care.

July 20. 1841. Another fibre found broken; the loose part was removed without disturbing the thread. No mention is made of the torsion being removed; it is, therefore, probable that a considerable torsion existed during the term observations of July 22. 1841.

July 26. 1841. A new suspension-thread attached. Great care was taken to render the tension of each fibre as equal as possible: several threads were rejected in succession, until a satisfactory one was obtained. The brass bar was suspended for several days, and the torsion occasionally removed.

Dec. 4—8. 1841. The declination magnet was found resting on the copper ring, the suspension-roller being untwisted, and the thread cut at its contact with the ring. A new thread was prepared, and the screws of the roller tightened. As much care was taken in forming the thread, and removing the torsion, as on July 26.

Dec. 20. 1841. On Mr RUSSELL's return from Edinburgh, where he had been for a short time, the thread was found much stretched, bringing the stirrup into contact with the copper ring; it was wound up a little, and the plane of detorsion examined preparatory to the term-day, Dec. 22, 23. 1841.

Dec. 23. Noon, Gött. From the uniformity of the declination readings during several hours of the term-day, the box was lifted, and the lower part of the stirrup found grazing on the copper ring; the suspension-roller was quite tight; it must, therefore, have been due to the stretching of the thread. The observations of declination are not given, on this account, till noon, when the thread was wound up. The observations after are probably affected by a considerable torsion-force.

January 19d 2h. 1842. Two fibres of the suspension-thread found broken; they were removed, but the plane of detorsion had evidently varied to a considerable extent. During the following night and day (term-day), the thread broke away fibre by fibre; and though readings of the instrument were continued, they cannot be considered of much value. They are given from January 19d 10h till 20d 6h, and are corrected by −13′.4, an approximate reduction for torsion obtained from a comparison with the usual daily observations.

January 21. 1842. A new thread prepared; allowed to stretch for several days, when the magnet was suspended. The torsion eliminated, the circle reading 280°.

May 24. 1842. A fibre found broken, removed by cutting near the top and bottom ties.

May 26. A new thread prepared, formed of 20 fibres. A weight was attached to it, and suspended till required.

May 30d 20h. No observations of torsion were made lately. On removing the declination magnet, in order that the dip observation might be made, the brass bar which was inserted was generally caught by a wooden block; it was allowed to move freely to-day, when the bar went round about 400°, the motion opposite to that of the sun. The torsion-circle read, vernier A. 146°. The torsion was supposed to be about 180°. The arm of the torsion-circle was turned through nearly 90°, by mistake, instead of 180°; torsion-circle reading, B. 235°. The magnet was replaced till the observation at 23h, after which the brass bar was again inserted, and ultimately the torsion-circle left reading B. 354° 55′. After 5h the brass bar was suspended until

May 31d 19h 30m, when the arm of the torsion-circle was turned to B. 358° 4′.

June 2d 5h +. Torsion again tried, and the circle left reading B. 44° 15′.

June 3d 5h +. It was found, when the torsion-circle read B. 35° 0′, that the torsion was removed as nearly as possible. It is believed that, from various causes, the torsion was not completely eliminated till now. Upon examining the daily observations, it was evident that a marked change had taken place in the declination readings between May 16d 20h and 23h, the period of the dip observation. There was no doubt but that the torsion had been induced at this time. It is almost certain that the brass bar must have gone round half a revolution before being checked by the wooden block; or, that being inserted in the *reverse* position, it had been *supposed* to have gone round and altered accordingly.

The breaking of a fibre May 24d, and the probable existence of torsion previously, will account for the difference from 180°.

From the observations for the value of $\frac{H}{F}$ March 3d and June 6d, a torsion of 180° corresponds to a deflection of the magnet of 16·3 and 14·12 scale divisions, respectively.

The following are the corrections which have been applied to the observations of declination, on account of the estimated torsions; the first value of $\frac{H}{F}$ applying only to the observations before May 23^d 20^h.

Period.	Torsion.	Correction.
	°	Sc. Div.
May 16^d 23^h—23^d 5^h,	180	+16·3
May 23^d 20^h—30^d 20^h,	249	+19·5
May 30^d 23^h,	160	+12·5
May 31^d 2^h—5^h,	40	+ 3·2
May 31^d 20^h—June 2^d 5^h,	37	+ 2·9
June 2^d 20^h—June 3^d 5^h,	9	− 0.7

June 6^d 20^h. Two fibres found broken; they were cut off and the torsion removed.

June 20^d 21^h. Torsion tried; found to be 61° 30′.

June 26^d 20^h. Fibre broken; removed the torsion which was 173°.

June 28^d. The torsion is always determined and removed during the period of dip observations. For these determinations, see notes to the Daily Observations.

July 18^d 20^h. Fibre broken; the torsion was removed as nearly as possible for the day's observations.

July 19^d 5^h. The thread, prepared May 26^d, and having a brass weight suspended since then, was now inserted, the other having become weak. This thread was composed of 20 fibres. The torsion was completely eliminated this evening.

19. Errors from accidental sources.

It is believed that a small magnet intended to be placed in the brass bar to facilitate the elimination of torsion from the suspension thread of the declinometer, but which was never used, had been lying in the writing-desk between July 1841 and March 29. 1843. The position of the desk was to the east of the reading telescope of the declinometer, except on term-days, when, for convenience, it was moved to a position nearly midway between the piers of the Declination and Balance magnetometers.

In the usual position of the desk, the greatest effect of the small magnet on the declination might be from + 0′·2 to − 0′·2; and during term-days from + 1′·1 to − 1′·1, It is probable that the magnet remained in the same position in the desk for a long period.

The effect would be constant for each term, and from term-day till term-day.

ABSOLUTE DECLINATION.

20. The absolute declination is determined in the following manner:—

The middle wire of the theodolite telescope is brought to coincide with the vertical wire of the reading telescope; the three verniers of the horizontal circle are then read; the telescope is turned until its middle wire coincides with the vertical line on the north meridian mark of the western transit in the Astronomical Observatory, and the verniers are again read.

In order to obtain the reading of the horizontal circle for the astronomical meridian, the theodolite telescope is placed as nearly in the meridian as possible, and being accurately levelled, the time of the sun's transit is observed by the magnetic observatory clock; the sun's transit was also observed with the transit telescope in the astronomical observatory, and the clocks being compared, the true time of transit, by the magnetic observatory clock, is obtained. The difference, if any, between the true and observed times of transit, is due to error of azimuth; the latter, being very small, is obtained from the former in multiplying by the factor $\frac{\text{cos. sun's declin.}}{\text{cos. sun's alt.}}$

21. If A be the difference of the horizontal circle readings for the fixed telescope and the north mark, Z the azimuth of the north mark, and D the angle contained by the line of collimation of the fixed telescope, and the magnetic axis of the declination bar at any instant, D being equal to the observed reading, at that instant *minus* the scale reading at the magnetic axis of the bar in angular measure, the true declination will be

$$180° - A + Z \mp D$$

The following tables contain the observations for the value of Z and A :—

TABLE 7.—Determinations of the Values of Angle A.

Date.	Readings of Horizontal Circle								Angle A.
	For Declination Telescope.				For North Mark.				
	Verniers.			Mean.	Verniers.			Mean.	
	A.	B.	C.		A.	B.	C.		
1841.	′ ″	′ ″	′ ″	° ′ ″	′ ″	′ ″	′ ″	° ′ ″	° ′ ″
Aug. 7	55 10·0	54 15·0	54 40·0	233 54 41·7	49 15·0	49 55·0	49 30·0	77 49 33·7	23 54 52·0
Sept. 4	44 50·0	45 20·0	44 50·0	233 45 0·0	40 5·0	40 5·0	40 0·0	77 40 3·3	23 55 3·3
Sept. 18	49 0·0	48 15·0	48 10·0	113 48 28·3	43 30·0	43 40·0	43 25·0	317 43 31·7	23 55 3·4
Sept. 28	48 45·0	48 10·0	48 25·0	293 48 26·7	43 50·0	43 25·0	43 10·0	317 43 28·3	23 55 1·6
Oct. 18	48 50·0	48 15·0	48 25·0	293 48 30·0	43 55·0	43 35·0	42 55·0	317 43 28·3	23 54 58·3
Nov. 2	48 50·0	48 20·0	48 15·0	293 48 28·3	43 50·0	43 35·0	42 55·0	317 43 26·7	23 54 58·4
Nov. 23	46 50·0	46 40·0	46 25·0	293 46 38·3	40 45·0	41 50·0	41 30·0	317 41 21·7	23 54 43·4
Dec. 3	48 15·0	48 7·5	47 55·0	293 48 5·8	42 10·0	43 10·0	43 0·0	317 42 46·7	23 54 40·9
1842.									
Jan. 18	50 15·0	50 0·0	49 50·0	293 50 1·7	40 30·0	40 15·0	39 40·0	317 40 8·3	23 50 6·6
Feb. 1	52 20·0	51 50·0	52 35·0	293 52 15·0	42 50·0	42 30·0	41 50·0	317 42 23·3	23 50 8·3
Feb. 15	49 12·5	48 50·0	49 5·0	293 49 2·5	39 50·0	39 22·5	39 10·0	317 39 27·5	23 50 25·0
Feb. 28	48 55·0	48 45·0	48 40·0	293 48 50·0	39 30·0	39 5·0	38 40·0	317 39 5·0	23 50 15·0
Mar. 12	49 30·0	49 10·0	49 25·0	293 49 21·7	40 10·0	39 50·0	39 10·0	317 39 43·3	23 50 21·6
Mar. 26	49 10·0	48 55·0	49 10·0	293 49 5·0	39 50·0	39 35·0	38 50·0	317 39 25·0	23 50 20·0
Apr. 9	49 25·0	49 10·0	49 30·0	293 49 21·7	40 10·0	39 45·0	39 15·0	317 39 43·3	23 50 21·6
Apr. 27	52 25·0	52 5·0	52 40·0	293 52 23·3	43 0·0	42 52·5	42 10·0	317 42 40·8	23 50 17·5
July 13	52 40·0	52 45·0	53 40·0	233 53 1·7	43 30·0	42 50·0	43 7·0	77 43 9·0	23 50 7·3
July 13	52 40·0	52 30·0	53 20·0	233 52 50·0	43 20·0	42 50·0	42 55·0	77 43 1·7	23 50 9·5
Aug. 16	52 40·0	52 25·0	53 6·6	233 52 43·9	43 12·5	42 52·5	43 8·0	77 43 4·3	23 50 20·4
Aug. 16	52 40·0	52 42·0	53 10·0	233 52 50·7	42 12·0	42 55·0	43 10·0	77 43 5·7	23 50 17·7
Sept. 17	52 45·0	53 12·5	52 42·5	233 52 55·0	43 25.0	43 0·0	43 10·0	77 43 11·7	23 50 16·7
Oct. 31	52 20·0	52 11·0	52 50·0	233 52 27·0	42 49·0	42 37·5	42 40·0	77 42 42·2	23 50 15·2
Oct. 31	52 9·0	52 2·5	52 45·0	233 52 18·8	42 41·5	42 27·5	42 39·0	77 42 36·0	23 50 16·2
Dec. 24	52 10·0	52 16·5	52 52·5	233 52 26·3	43 5·0	42 42·5	42 37·5	77 42 48·3	23 50 22·0

The following mean values of Angle A were adopted :—

August 7—November 23. 1841, Angle A=23° 54′ 57″·2.
January 18, and February 1. 1842, ... =23° 50′ 7″·5.
February 15—December 24. 1842, ... =23° 50′ 19″·3.

The observation for the value of A, Dec. 23. 1841, has ~~not~~ been used in taking the mean for 1841.

Between Dec. 3. 1841 and Jan. 13. 1842, the pillar of the reading telescope of the Declinometer was shifted. There is no register of the period at which this was done, but it is believed to have been at the same period at which the long scale was inserted in place of the short one on the Declination Magnet, or Dec. 28–9. 1841.

The observations of Angle A, Jan. 18. and Feb. 1. 1842, have been separated from the others for that year, as they are considerably less, and the difference may have been due to some cause unrecorded.

In the observations after July 13. 1842, the reading for each vernier is the mean of several made with different lights. The light was generally projected on the verniers in the direction of the divisions, by means of a mirror.

The two observations, July 13. 1841 and the first on Aug. 16, were rejected in taking the mean, as they were noted as having been made with bad lights, when the coinciding divisions could not be well determined. Retaining the observation of Dec. 3. 1841, the mean value of Angle A for 1841=23° 54′ 55″·2. Using the observations rejected in 1842, the mean value after Feb. 1842 = 23° 50′ 19·1″.

TABLE 8.—Observations for the Value of the Angle Z.

Date.	Readings of Horizontal Circle.				Sun's Limb.	Wires.					Observatory Clock Time.		Observed *minus* True Transit.	Error of Azimuth.	Reading of Horizontal Circle.					Angle Z.
	Verniers.			Mean.		Times of Sun's Transit.					Transit of Centre, Mean of reductions to Wire III.	Meridian Transit.			Meridian.	For North Mark.				
	A.	B.	C.			I.	II.	III.	IV.	V.						Verniers.			Mean.	
																A.	B.	C.		
	″	″	″	° ′ ″		s.	s.	m. s.	s.	s.	h. m. s.	h. m. s.	s.	′ ″	° ′ ″	′ ″	′ ″	′ ″	° ′ ″	° ′ ″
Jan. 17	45·0	45·0	40·0	319 17 43.3	I.	......	......	....	......	......	1 0 10·58	1 0 9·85	+ 0·73	+0 10·5	319 17 32·8	40 20·0	40 5·0	39 25·0	137 39 56·6	1 37 36·2
					II.	23·5	51·3	1 20·3	47·2	15·0										
Jan. 18	12·5	10·0	12·5	319 18 11·7	I.	......	56·5	59 25·7	52·7	20·5	1 0 35·03	1 0 33·21	+ 1·82	+0 26·9	319 17 44·8	40 30·0	40 15·0	39 40·0	137 40 8·3	1 37 36·5
					II.	48·0	15·5	1 44·5	11·3	39·2										
Jan. 21	30·0	20·0	40·0	319 18 30·0	I.	37·3	4·5	0 33·7	0·7	28·2	1 1 42·85	1 1 40·83	+ 2·02	+0 29·4	319 18 0·6	40 50·0	40 25·0	39 55·0	137 40 23·3	1 37 37·3
					II.	55·5	23·3	2 52·0	19·3	46·5										
Feb. 1	20·0	15·0	60·0	319 20 31·7	I.	2·0	29·6	2 57·7	24·0	51·0	1 4 5·37	1 4 3·84	+ 1·73	+0 26·0	319 20 5·7	42 55·0	42 35·0	41 50·0	137 42 23·3	1 37 42·4
					II.	18·3	45·3	5 13·5	40·0	7·0										
Feb. 3	7·5	7·5	25·0	319 20 13·3	I.	26·5	54·0	3 22·0	48·5	15·5	1 4 29·77	1 4 29·46	+ 0·31	+0 4·7	319 20 8·6	42 47·5	42 35·0	41 50·0	137 42 24·2	1 37 44·4
					II.	42·0	9·5	5 37·5	4·0	31·0										
Feb. 5	45·0	35·0	60·0	319 20 46·7	I.	53·0	20·5	3 48·5	15·0	41·5	1 4 56·00	1 4 51·57	+ 4·43	+1 7·1	319 19 39·6	42 20·0	42 0·0	41 20·0	137 41 53·3	1 37 46·3
					II.	......	35·3	6 3·5	30·0	57·0										
Feb. 15	20·0	25·0	25·0	319 17 21·7	I.	......	7·7	3 55·5	1·5	28·0	1 4 41·91	1 4 40·50	+ 1·41	+0 22·0	319 16 59·7	39 50·0	39 22·5	39 10·0	137 39 27·5	1 37 32·2
					II.	54·0	20·5	5 48·3	14·3	41·0										
Feb. 16	20·0	10·0	20·0	319 17 16·7	I.	42·0	9·0	3 36·5	2·5	29·0	1 4 42·77	1 4 42·34	+ 0·43	+0 6·8	319 17 9·9	39 55·0	39 35·0	39 5·0	137 39 31.7	1 37 38·2
					II.	54·5	21·5	5 49·0	15·0	41·5										
Feb. 18	20·0	10·0	25·0	319 17 18·3	I.	32·7	59·4	3 27·0	53·0	19·0	1 4 33·04	1 4 44·14	−11·10	−2 57·2	319 20 15·5	42 55·0	42 47·5	42 10·0	137 42 37·5	1 37 38·0
					II.	45·0	11·5	5 39·3	5·0	31·3										
Feb. 19	15·0	10·0	35·0	319 20 20·0	I.	43·0	10·0	3 37·3	3·5	29·5	1 4 43·43	1 4 43·03	+ 0·40	+0 6·5	319 20 13·5	42 55·0	42 45·0	42 10·0	137 42 36·7	1 37 36·8
					II.	......	......	....	......	......										
Feb. 22	25·0	15·0	40·0	319 17 26·7	I.	29·3	55·7	3 23·0	49·0	15·0	1 4 28·92	1 4 39·49	−10·57	−2 50·4	319 20 17·1	42 55·0	42 45·0	42 15·0	137 42 38·3	1 37 38·8
					II.	41·0	7·3	5 34·7	0·5	26·5										
Feb. 23	55·0	50·0	75·0	319 21 0·0	I.	41·0	7·7	3 35·0	1·0	27·0	1 4 40·71	1 4 37·40	+ 3·31	+0 53·4	319 20 6·6	42 50·0	42 40·0	42 5·0	137 42 31·7	1 37 34·9
					II.	52·5	18·8	5 46·3	12·3	38·3										
Feb. 24	40·0	40·0	50·0	319 16 43·3	I.	35·2	1·5	3 29·0	54·7	21·0	1 4 34·62	1 4 34·69	− 0·07	−0 1·2	319 16 44·5	39 30·0	39 0·0	38 40·0	137 39 3·3	1 37 41·2
					II.	46·4	12·8	5 40·2	6·0	32·3										
Feb. 28	25·0	25·0	35·0	319 16 28·3	I.	......	22·0	1 49·3	15·0	41·0	1 2 54.55	1 2 55·56	− 1·01	−0 16·8	319 16 45·1	39 30·0	39 5·0	38 40·0	137 39 5·0	1 37 40·1
					II.	6·2	32·5	3 59·8	25·3	51·5										

Mean value of Angle $Z = 1^\circ\ 37'\ 38''\!\cdot\!8$.

The following are the mean values of Angle A + Z adopted :—

August 7—November 23. 1841 Angle $A + Z = 25^\circ\ 32'\ 36''\!\cdot\!0$ used during 1841.
January 18—February 1. 1842 ……………… $25^\circ\ 27'\ 46''\!\cdot\!3$ used from Jan. 1 till Feb. 5. 1842.
February 15—December 24. 1842 ……………… $25^\circ\ 27'\ 58''\!\cdot\!1$ after Feb. 5. 1842.

Tables have been formed from these values, and the known values of the scale divisions, by which the readings in scale divisions have been reduced to angular measure.

22. Mr **RUSSELL** had determined the time of vibration of the declination magnet to be nearly 18 seconds, which was accordingly used in the observations.

The results below were obtained afterwards.

June 24^{d}	20^{h}	1842,	60	vibrations give a mean of	17·89
July 16	5	...	22	... ...	17·80
Sept. 24	6	...	22	... ...	17·84
Oct. 8	3	...	50	... ...	17·82

23. The points of the scale which coincided with the vertical wire of the reading telescope, were noted 18^{s} before the minute of observation, at the minute, and 18^{s} after the minute. The readings at these periods being *a*, *b*, and *c*; the mean is deduced by the formula $\frac{a + 2b + c}{4}$.

The observations of declination in this volume are given in minutes and decimals. The absolute declination is obtained from them by adding 23° 20′; or if 100′ be subtracted, the absolute declination is obtained by prefixing 25°.

§ 4. BIFILAR OR HORIZONTAL FORCE MAGNETOMETER.

24. This instrument is also by **GRUBB** of Dublin, and is similar, in its general construction, to the Declinometer.

The magnet, whose dimensions are 15 inches, $\frac{7}{8}$ inch, and $\frac{1}{4}$ inch, is placed in a stirrup, which carries below it the lens and scale connected by a tube, forming a close collimator; the axle of a grooved wheel fits into the suspension eyes of the stirrup, the whole being borne by a silver wire passing round the grooved wheel, and having its two extremities fixed to a suspension roller; the roller is supported by the torsion circle, which also bears beneath the roller a micrometer-headed screw, right-handed where it meets one wire (or portion of the wire), and left-handed where it meets the other. The screw is for the purpose of making the distance of the wires at the top equal to that at the grooved wheel.

25. In the adjustment of the instrument, the magnet is forced to a position at right angles to the magnetic meridian, by turning the arms of the torsion circle. As, in forcing the magnet from the meridian, the upper extremities of the wire will move through a greater angle than the lower extremities, the wires will be no longer vertical, and the magnet and appendages will be raised; the forces producing equilibrium, therefore, being the weight suspended endeavouring to attain the lowest point, and the horizontal component of the earth's magnetic intensity acting on the free magnetism of the bar.

26. If v be the excess of angular motion of the arms of the torsion circle or upper extremity of the wires over u, that of the lower extremities or magnetic bar in moving the latter from the meridian, the equation of equilibrium is

$$m\,X \sin u = W \frac{a^2}{l} \sin v,$$

m, X, W, a, and l, being respectively the magnetic moment of the bar, the horizontal component of the earth's magnetic force, the weight suspended, the interval and length of the wires.

By differentiation and division, the following equation is obtained, $u = 90°$.

$$\frac{\Delta X}{X} = n\,\alpha \cot v + t\,(Q + 2\,e - e'),$$

n being the number of scale divisions from the zero, or reading when $u = 90°$; α the arc value in parts of radius of one scale division; t the number of degrees above the zero of temperature; Q the value of $\frac{\Delta m}{m}$ for 1°; e and e' the coefficients of expansion for the brass of the grooved wheel, and silver of the wires.

27. The tables of abstracts, in parts of the whole horizontal force, are computed by this formula. The values of

$$K = \alpha \cot v, \text{ and}$$
$$q = Q + 2\,e - e',$$

are given No. 32.

28. During considerable disturbances, the collimator scale, which contains too small an angle, goes out of the field of the reading telescope. In this case it has been found necessary to turn the arms of the torsion circle until it again appears; without this it has happened that the greater part of a disturbance would have been lost. As there was some doubt that turning the torsion circle after adjustment might affect the instrument injuriously, experiments were made in 1842, during periods of slight change, which shewed, after turning the torsion circle a few degrees in different directions, that on recurring to the original value of v, the scale readings were unaltered.

In altering v, the value of the scale divisions, and the unit of force are also changed; it is therefore necessary to reduce the observations to a common unit. Let β be the small angle through which the torsion circle is turned, then v becomes $v' = v \pm \beta$. If $m\,X = F$, $W \frac{a^2}{l} = G$, the equations of equilibrium for the two positions are

$$F = G \sin v \qquad u = 90°. \qquad (1.)$$
$$F' = \frac{G \sin (v' \pm \Delta v')}{\cos \Delta v'.} \qquad (2.)$$

Subtracting (1) from (2), and dividing by (1),

$$\frac{F' - F}{F} = \frac{\Delta F}{F} = \frac{\sin v' - \sin v}{\sin v} \pm \frac{\cos v'}{\sin v}\ \Delta v'.$$

If n be the number of scale divisions from the zero or reading for $u = 90°$, when $v' = v \pm \beta$, N the number from the zero, for the same force, if v had its normal value, then

$$N = \frac{\sin v' - \sin v}{a \cos v} \pm n \, \frac{\cos v'}{\cos v},$$

or adapting the first constant to logarithmic computation,

$$= \frac{2 \sin \frac{\beta}{2}}{a \cos v} \cos \left(v + \frac{\beta}{2} \right) + n \, \frac{\cos v + \beta}{\cos v}$$

$$= A + n \, B.$$

β is considered negative when v is diminished, and n is negative when the reading is below the zero.

The following are the values of β, A, and B, used in reducing the extra observations :—

TABLE 9.—Constants for the Reduction of Observations after altering the reading of the Torsion Circle.

Periods to which the quantities apply.	Angle v.	β.	A.	B.
1841.				
d. h. m. d. h. m.	° ′	° ′		
Sept. 7 23 0—30 5 0	65 2	+ 0 50	+ 43·8	0·969
Sept. 25 4 0—25 5 20	65 52	+ 6 0	+ 282·4	0·761
25 5 20—25 5 25	65 52	+ 4 0	+ 196·8	0·842
25 5 25—25 5 40	65 52	+ 3 0	+ 150·8	0·882
25 5 40—25 5 50	65 52	+ 5 0	+ 240·7	0·802
25 5 50—25 6 25	65 52	+ 3 0	+ 150·8	0·882
25 6 25—25 7 0	65 52	+ 2 0	+ 102·6	0·921
Oct. 6 20 0—19 20 0	69 6	− 0 50	− 45·3	1·038
1842.				
July 2 10 16— 2 13 0	69 6	− 2 22·5	− 133·7	1·108

ADJUSTMENTS.

29. The scale of the collimator contains 280 divisions with the graduation at 300. Determination of the angular value of 1 scale division :—

TABLE 10.—Value of the Bifilar Magnetometer Scale Divisions.

Scale Division.	Theodolite Reading.	Scale Division.	Theodolite Reading.	Value of 50 Scale Divisions.
	° ′ ″		° ′ ″	° ′ ″
110	5 27 40	160	4 31 30	0 56 10
120	5 16 25	170	4 20 15	0 56 10
130	5 5 10	180	4 9 0	0 56 10
140	4 53 55	190	3 57 45	0 56 10
150	4 42 45	200	3 46 35	0 56 10
160	4 31 30	210	3 35 20	0 56 10

Mean value of 1 Scale Division 1′·1233.

30. *June* 23. 1841. A number of observations were made, following the directions of the Report of the Royal Society, which were rendered valueless by various accidental causes, but chiefly from an extreme idea of the extent of accuracy to be expected in the adjustments, and probably from the changes in the horizontal force being considerable at the time. The collimator was also sometimes moved accidentally during the adjustment.

A silver wire having been prepared, and the extremities attached to the suspension roller, the grooved wheel, No. 8, whose diameter = 0·409 inch, was inserted, and the stirrup with a brass weight appended. The zero of the micrometer head of the bifilar screw being equivalent to an interval of half an inch, and each of its divisions = 0·0005194 inch, $\frac{0·500 - 0·409}{0·0005194} = 175$ was the number of divisions through which the micrometer head was turned back, in order to equalize the intervals above and below.

The weight being now removed, and the magnet inserted, it was found necessary to turn the torsion circle through 159°, to deflect the magnet to a position at right angles to the meridian. From eq. (1) $\frac{F}{G} = \sin v = \cos 159° = 0·93$.

This wheel was retained.

The magnet was nearly in the magnetic meridian when the torsion circle read 268° 54′; the scale reading was then 118·0.

The magnet was removed and the brass weight suspended, when the scale read 89·0. Approximately equation (1) becomes $F\,u = G\,v$, whence $u + v = \left(\frac{G}{F} + 1\right) v$

$v = (118 - 89)\ 1'·1233 = 33'$.

$$u + v = \frac{1·93}{0·93} \times 33' = 67'$$

The arms of the torsion circle were turned 1° 7′. Torsion circle reading 270° 1′

Scale reading with weight attached, 149.

. . . . . . magnet . . 152.

June 24^{d}. After several trials, the plane of detorsion and the magnetic meridian were found to coincide when the torsion circle read 269° 56′.

The weight being attached, the arm of the torsion circle was turned 90°—its reading being then 359° 56′; the collimator was turned by its independent motion till the scale read 130$^{\text{div}}$. The magnet being substituted, N. pole East, it was found requisite to turn the arms of the torsion circle 70° 4′, to make the scale again read 130$^{\text{div}}$.

Magnet at right angles to magnetic meridian. Scale reading 130^{d}. Torsion circle reading 70° 0′.

$$v = 70^\circ\, 4' \quad \alpha = 1'\cdot 1233 = \cdot 0003268 \text{ in parts of radius} \quad k = \alpha \cot v = 0\cdot 000185$$

In this position of the magnet, N. pole towards the east, increasing scale readings indicated decreasing force, this has been reversed in the reduced observations, which were *subtracted* from a constant quantity.

July 29^{d}. The bifilar was readjusted, the N. pole of the magnet being directed to the west, in order that increasing readings may indicate increasing force.

The plane of detorsion and magnetic meridian coincided when the torsion circle read 269° 52′. The brass weight being suspended, the arms of the torsion circle were turned 90°; circle reading 179° 52′. The collimator scale was made to read 153·3$^{\text{div}}$. The weight being removed, and the magnet substituted, the arms of the torsion circle were turned 65° 2′; circle reading 114° 50′; the scale reading was 153$^{\text{div}}$.

$$v = 65^\circ\, 2', \; k = 0\cdot 0001185$$

Sept. 7^{d}. The readings of the scale being always considerably above the zero division (153), the arms of the torsion circle were turned 50′; the circle reading 114° 0′.

$$v = 65^\circ\, 52,' \; k = 0\cdot 0001464.$$

Mr RUSSELL could not make any conjecture as to the difference between the values of v, obtained June 24^{d} and July 29^{d}. Professor LLOYD, with whom he communicated, suggested a twist in the wires as the probable cause; this Mr RUSSELL found to be the case.

Oct. 1^{d}. When the magnet was removed, and the weight suspended, afterwards the weight and collimator being lifted off the grooved wheel, the wires turned sharply round towards the east.

The old wire was removed, and great pains taken to obtain one free of twist; six wires were, in succession, rejected; for, though prepared with great care, very different values of v were obtained, according as the magnet was placed with its N. pole easterly or westerly. After much trouble and trials in every way, a wire was got which gave satisfactory results *after* pegging the extremities and winding up (fertile sources of twist). The wires kept nearly the same position with light and heavy weights, and the value of v with the N. pole of the magnet in opposite directions did not differ 1°—as near a coincidence as seems attainable.

Plane of detorsion coinciding with magnetic meridian, circle reading, 88° 16′.

Weight attached, arms of circle turned 90°, circle reading, 358° 16′.

Scale made to read, $150{\cdot}8^{\text{div}}$.

Magnet inserted, the scale read 150^{div}.

When the torsion circle was made to read, 290° 0′.

$$v = 68^\circ\, 16',\ k = 0{\cdot}0001303.$$

Oct. 20^{d}. The general readings of the scale having so increased as to render the middle of the scale (150) no longer the mean position, the arms of the torsion circle were turned 50′. Circle reading 289° 10′.

$$v = 69^\circ\, 6',\ k = 0{\cdot}0001248.$$

31. The time of each vibration of the bifilar magnet had been determined by Mr Russell to be about 25 seconds; his observations are not recorded.

The following observations were made.

June 25^{d} 8^{h}.

			s.
Mean of	7	estimations,	26·00
...	4	...	26·32
...	5	...	26·63
...	4	...	27·03
...	7	...	26·40

Mean of all, 1 vibration = 26^{s}.48.

July 16^{d} 6^{h}.

			s.
Mean of	8	vibrations,	26·25
...	6	...	26·17
...	8	...	26·18

Mean of all, 1 vibration = 26.20.

The above vibrations were obtained by means of an iron key. Observations when the magnet was vibrating *naturally* gave a result of 25 seconds.

July 18^{d} 20^{h}. Observations during a natural vibration:

		s.			
14	vibrations,	35·52	1	vibration,	25·37
20	...	53·10	1	...	26·55

In each of these only two estimations were made, one at the commencement, and one at the termination. The last set is not considered good, as the vibration had nearly ceased when the last estimation was made.

August 22^d 20^h. There being a considerable natural vibration of the bifilar magnet, with little or no change of mean position, the following estimations were made at the extremities of the arcs.

				5 Vibrations.		Mean.
m.	s.	m.	s.	m.	s.	
7	33·0	9	35·0	2	2·0	2^m $2^s\cdot9$
7	56·0	10	0·0	2	4·0	
8	22·0	10	25·0	2	3·0	
8	47·5	10	49·5	2	2·0	
9	10·5	11	14·0	2	3·5	

Mean, 1 vibration $= 24^s\cdot58$.

The arc of vibration was 11′ during the first 9 vibrations, 9′ at the 10th, and at the end of the 11th the magnet stopped.

Oct. 8^d 3^h. The magnet vibrated by a knife.

2 estimations, mean of 4 vibrations, 1 vibration $25^s\cdot22$
2 ... ... 4 ... 1 ... $26^s\cdot28$

8 estimations, as below.

		3 Vibrations.	Mean.
s.	s.	s.	
16·2	35·0	78·8	$78^s\cdot17$
42·8	0·5	77·7	
8·8	27·0	78·2	
35·0	53·0	78·0	

1 vibration $= 26^s\cdot06$.

Oct. 11^d 23^h. Natural vibration.

2 estimations, mean of 11 vibrations, 1 vibration $25^s\cdot18$.

25^s was used throughout in the observations.

32. The point of the scale coinciding with the vertical wire of the fixed telescope is estimated to a tenth of a division, at 25^s before the minute of observation, at the minute, and 25^s after it; the mean is deduced, as in the declination, from the formula $\frac{a+2b+c}{4}$, a, b, and c being the three readings.

The mean thus obtained is corrected to the temperature of 26° Fahr., this being below the lowest temperature which has occurred within the observatory. A constant quantity of 300·0 has been added to all the readings, in order that the mean readings might be about 500; in this case the greatest changes will be contained within 0 and 1000.

The values of 1 scale-division, in parts of the whole horizontal force, are given beneath; they are also given at the foot of each page of the Daily Observations of Magnetometers.

Tables have been formed giving the temperature-correction for every tenth of a degree Fahr. to a tenth of a scale-division, from the formula

$$\cdot\ \frac{(t^{\circ}-26^{\circ})}{k}\left(q+2e-e'\right)+300{\cdot}0$$

The adopted value of $q=0{\cdot}000294$. See § 6.

$e={\cdot}0000103$ $e'={\cdot}0000106$.

TABLE 11.—Values of k and q for the Bifilar Magnetometer, and the periods to which they apply.

Periods to which the Values apply.	Value of k.	Value of q.
1841.		
d. h. — d. h.		Sc. Div.
July 11 20—July 23 5	0·0001185	2·57
Aug. 4 20—Sept. 7 5	0·0001522	2·00
Sept. 7 20—Sept. 30 5	0·0001464	2·08
Oct. 6 20—Oct. 19 20	0·0001303	2·34
Oct. 19 23—Dec. 31 5 and during 1842	0·0001248	2·44

33. As I have had much doubt of the exactness of the values of $\frac{\Delta m}{m}$, I have in all cases given the temperatures along with the corrected observations, so that each magnetician may have it in his power to apply a more accurate correction, if such is to be found.

It is obvious that, supposing the value of $\frac{\Delta m}{m}$ to be well determined, the accuracy of the corrections will depend on the temperature of the magnet being well ascertained.

The error in the observations of the scale will be generally less than 0·1 scale-division; the error in reading the thermometer may be 0°·1 Fahr.; the consequent error in correction may, therefore, be upwards of 0·2 scale-division.

The thermometer, by Ross, has a bulb 0·5 inch in diameter; it is inclosed in a glass tube, open at the bulb, which fits into the lid of the magnetometer-box, leaving the stem and scale above, and the bulb below. The box, like that of the Declinometer, was not well closed, and it was soon evident that during a rapid rise or fall of temperature, the thermometer would indicate more or less than the temperature of the magnet.

The fire lighted in the morning, during the winter months, conspired with the temperature of the day to make the increase more rapid than it would otherwise have been; and there is little doubt that the indications of the thermometer would frequently exceed the temperature of the magnet by 1°·0 Fahr.

In 1843, having formed inner boxes, and had the whole well closed, Messrs

Adie and **Son** were desired to make a thermometer, whose bulb rested in a cup in a brass bar of the same dimensions as the magnet, and covered loosely by a small brass cap.* The following comparisons were made of the indications of the two thermometers, the box being in its original state, and the rise of temperature considerable.

TABLE 12.—Comparisons of the Thermometers with the Bulb free, and with the Bulb in a brass cup.

Göttingen Mean Time.	Thermometer.		Difference.
	Ross.	Adie.	
1844.	°	°	°
d. h.			
Jan. 2 21	30·9	30·7	0·2
22	31·3	31·0	0·3
23	31·9	31·5	0·4
0	33·9	33·0	0·9
1	38·9	37·6	1·3
2	42·3	41·0	1·3
3	44·7	43·0	1·7
4	45·6	44·0	1·6
5	45·9	44·5	1·4
6	46·0	44·9	1·1
7	46·1	45·0	1·1
8	45·9	44·9	1·0
11	45·0	44·3	0·7

34. No observations have been made to determine the effect of the copper ring or damper. It must, however, be small.

During terms, and generally during magnetic disturbances, the temperature is noted at the beginning of each hour; the corrections for observations between the hours are interpolated from those at the beginning of the hours.

ABSOLUTE HORIZONTAL INTENSITY.

35. An observation of absolute horizontal intensity was made by Mr **Russell**, March 26. 1842. It is given, page 66, with the particulars of reduction.

As there was no extra declinometer, it was necessary to endeavour to eliminate the changes of declination, by reversing the magnet. On account of the imperfections of this method, no other observations were made till 1843, when an extra instrument was obtained.

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* It was my original intention to enclose the bulb of the thermometer in a metallic capsule (from which this differs little), but it was difficult to determine the thickness of the capsule. Professor **Lloyd**, to whom I wrote, informed me that he had already adopted the precaution, having obtained a brass bar of the dimensions of the magnet, containing a small iron cup with mercury, in which the bulb of the thermometer was placed.

§ 5. BALANCE OR VERTICAL FORCE MAGNETOMETER.

36. The Balance Magnetometer is by **ROBINSON** of London. It is composed of a needle 12 inches long, and about 1 inch broad, with knife-edge axle, resting on agate planes; at the extremities of the needle are brass rings, each carrying a cross of spider's threads. The needle is placed horizontally, at right angles to the magnetic meridian It is accurately adjusted by means of two fine brass screws; one working horizontally towards one extremity balances the needle, the other near the other extremity, working vertically, regulates its sensibility.

The apparatus is covered by a rectangular box, having glazed openings on two sides, opposite the spider's crosses; those on one side allowing light to be thrown on the crosses from two small mirrors, those on the other for viewing them, and determining their position, which is done accurately by means of microscopes carrying micrometers. There is a thermometer within the box for giving the temperature of the magnet.

37. If m be the moment of free magnetism of the needle, Y the vertical component of the earth's magnetic force, W the weight of the needle, g the distance from the centre of motion to the centre of gravity, ϵ the angle contained by the line joining these two centres, and the magnetic axis of the needle on the horizontal, the magnetic axis being at right angles to the plane of the magnetic meridian; then the equation of equilibrium is

$$m\,\mathrm{Y} = \mathrm{W}\,g \cos \epsilon$$

Whence differentiating the equation and dividing by it

$$\frac{\Delta\,\mathrm{Y}}{\mathrm{Y}} = \tan \epsilon\,\Delta\,\epsilon - \frac{\Delta\,m}{m}$$

$\Delta\,\epsilon$, or the varying angle which the magnetic axis makes with the horizontal, is obtained from observations with the micrometer; for $\frac{\Delta\,m}{m}$ see section on temperature correction.

It is conceived that ϵ cannot be determined with accuracy by the practical method of inversion, and Dr **LLOYD** has shewn that it may be obtained from the following formula:

$$\tan \epsilon = \cot \theta \frac{\mathrm{T}'^2}{\mathrm{T}^2}$$

T′ and T being the times of one vibration, the former in the horizontal plane, the latter in the vertical plane, and θ the magnetic dip.

38. Adjustments, &c.

June 16, 17. 1841. Experiments were made to determine the effect of temperature on the balance magnet. See subsequent section.

39. Values, in arc, of the divisions of the micrometer heads. A brass needle

with scales, at the same distance from the centre as the spider's crosses in the magnet, and graduated to 10′, was placed on the agate planes of the support, and the moveable wires brought to coincide with the graduated lines of the scale, the micrometer heads being read at each coincidence.

TABLE 13.—Determination of the value of one division of the Micrometer Heads of the Balance Magnetometer, June 21. 1841.

Left Hand Micrometer.					Right Hand Micrometer.				
Scale.	Reading of Micrometer Head.	Scale.	Reading of Micrometer Head.	Micrometer Divisions in 60′.	Scale.	Reading of Micrometer Head.	Scale.	Reading of Micrometer Head.	Micrometer Divisions in 60′.
′	Mic. Div.	′	Mic. Div.	Mic. Div.	′	Mic. Div.	′	Mic. Div.	Mic. Div.
0	16·5	60	614·5	598·0	0	16·0	60	613·8	597·8
10	116·5	70	714·5	598·0	10	116·0	70	713·9	597·9
20	216·3	80	813·9	597·6	20	215·1	80	813·4	598·3
30	316·0	90	913·5	597·5	30	314·8	90	913·1	598·3
40	416·0	100	1013·4	597·4	40	414·4	100	1013·0	598·6
50	515·7	110	1113·0	597·3	50	514·3	110	1112·7	598·4

Mean value of 1 Division, Left Micrometer, . . . 0′·1004
... ... Right ... . . . 0′·1003

Another Series, August 30. 1841.

Left Hand Micrometer.					Right Hand Micrometer.				
Scale.	Reading of Micrometer Head.	Scale.	Reading of Micrometer Head.	Micrometer Divisions in 40′.	Scale.	Reading of Micrometer Head.	Scale.	Reading of Micrometer Head.	Micrometer Divisions in 40′.
′	Mic. Div.	′	Mic. Div.	Mic. Div.	′	Mic. Div.	′	Mic. Div.	Mic. Div.
0	19·0	40	417·8	398·8	0	45·0	40	446·7	401·7
10	117·5	50	517·4	399·9	10	145·2	50	547·1	401·9
20	216·2	60	616·9	400·7	20	246·6	60	647·3	400·7
30	319·1	70	716·3	397·2	30	345·0	70	747·8	402·8
0	19·5	40	418·8	399·3	0	44·9	40	446·3	401·4
10	117·4	50	518·2	400·8	10	145·9	50	547·6	401·7
20	217·0	60	616·7	399·7	20	246·0	60	647·4	401·4
30	319·4	70	716·3	396·9	30	345·9	70	747·8	401·9

Mean value of 1 Division, Left Hand Micrometer, . . 0′·1002
... ... Right ... . . 0′·0996

Observations made Nov. 23. 1843, gave a mean value for both Micrometers $1^{d} = 0'{\cdot}1006$; this was joined to the above, and the mean of the whole $1^{d} = 0'{\cdot}1003$ adopted.

June 21. 1841. The balance magnetometer was adjusted with the aid of a horizontal needle and KATER's compass, so that the magnet of the instrument should be at right angles to the magnetic meridian; the magnet was balanced and its sensibility adjusted by the small screws, and the fixed wires of the microscopes were made to be in the same horizontal plane.

The crosses of gold wire were found loose, and it was necessary to substitute fibres of silk till July 2, when Mr J. ADIE inserted silver wires. It was not found necessary to readjust the magnet, the bisection of the crosses being sufficiently horizontal.

July 6. 1841. A difference of ten micrometer divisions was observed between the readings of the two micrometers, due to the line joining the crosses not passing through the centre of motion.

After July 26. 1841, the north pole of the magnet was towards the east; before that date it was towards the west.

40. Determination of the deviation of the line joining the bisection crosses from the magnetic axis.

For this purpose the needle is reversed on its support; half the difference of the readings in the two positions is the deviation.

TABLE 14.—Observations to determine the deviation of the line joining the Bisection Crosses from the Magnetic Axis of the Balance Needle.

N. end of Needle.	July 27. 1841.			July 27. 1841.			Sept. 1. 1841.			Oct. 2. 1841.			Jan. 11. 1842.		
	Mean of Two Microm.	Mean of Alternate Two.	Diff.	Mean of Two Microm.	Mean of Alternate Two.	Diff.	Mean of Two Microm.	Mean of Alternate Two.	Diff.	Mean of Two Microm.	Mean of Alternate Two.	Diff.	Mean of Two Microm.	Mean of Alternate Two.	Diff.
E.	−195·1			+ 70·5			+205·6			−15·0			−120		
W.	+118·6	−188·1	306·7	+370·7	+ 60·2	310·5	+190·3	+227·5	37·2	−56·5	−13·7	42·8	−236	− 96	140
E.	−181·1	+100·9	282·0	+ 49·9	+356·8	306·9	+249·3	+173·3	76·0	−12·3	−64·2	51·9	− 72	−239	167
W.	+ 83·1	−235·1	318·4	+343·0	+ 46·8	296·2	+156·2	+221·5	65·3	−71·8	−23·2	48·6	−242	− 84	158
E.	−289·0	+ 27·7	316·7	+ 43·8	+321·0	277·2	+193·7	+147·4	46·3	−34·2			− 96	−227	131
W.	− 27·8			+298·9	+ 25·5	273·4	+138·5	+184·3	45·8				−212	− 89	123
E.				+ 7·3			+175·0	+137·3	37·7				− 83		
W.							+136·0								

July 27. 1841.	1st Series, Mean deviation,	153·0	Correction for deviation, N. pole east, ... + 150
... ...	2d Series, ...	146·4	
Sept. 1. ...	. . . .	25·7	. . . . −25
Oct. 2. ...	. . . .	25·1	
Jan. 11. 1842,	. . . .	72·0	. . . . −72

The first series of observations, July 27. 1841, giving some reason to conclude that the magnet, on reversal, found different bearing points, the supports of the instrument were examined; the marble base was found quite level, but the south agate plane higher than the other; the north agate plane was also inclined to the west, and the south agate plane slightly inclined to the east.

In the second series, July 27. 1841, each reading is the mean of two observations, for each of which the needle was lifted. After this observation, the horizontal screw was moved till the readings became about $-150{\cdot}0$; the north pole of the magnet being turned east.

The correction for deviation of the line joining the crosses from the magnetic axis has not been applied.

Aug. 30. 1841. Mr SIMMS, of London, adjusted the agate planes of the balance magnetometer. They do not, however, seem to be perfect planes, but have a slight degree of convexity in the centre. Mr SIMMS also inserted spider's threads for the bisection crosses, instead of the silver wire; the reading micrometers were adjusted at the same time.

41. Vibration of the balance magnet in a horizontal plane.

The magnet was attached to the suspension thread of the declinometer by means of a light stirrup of card in the first four observations, and of the same silk as the suspension thread on the other occasions. A small piece of wire in the first four observations, and of paper afterwards, was gummed to the extremity of the needle, and the times of passing the wire of the fixed telescope were noted. The corrected time T' is deduced from the observed time of vibration t, by the formula

$$T' = t\left(1 + \frac{H}{2F} - \frac{\alpha\alpha'}{16}\right)$$

The value of $\frac{H}{2F}$ for the balance magnet is deduced from that of $\frac{H}{F}$ for the declination magnet, in multiplying the latter by the coefficient.

$$\frac{\text{Force of Declination Magnet}}{\text{2 Force of Balance Magnet.}}$$

TABLE 15.—Values of T', the Time of Vibration of the Balance Needle in a Horizontal Plane.

Date.	Number of Estimations.	Number of Vibrations.	Semi-Arc.		Time of one Vibration.		
			Commencing.	Ending.	Observed.	Corrected for Torsion.	Corrected for Torsion and Arc.
			° ′	° ′	s.	s.	s.
July 6. 1841	28	28			11·920	11·950 ?	11·950 ?
Aug. 3. 1841	16	144			11·980	12·010	12·000 ?
Sept. 4. 1841	12	128			11·930	11·962	11·952 ?
Jan. 11. 1842	6	150			11·969	11·998	11·986 ?
Aug. 24. 1843	28	120	8 0	2 0	11·965	12·012	12·008
Sept. 4. 1843	40	190	2 30	3 0	11·978	12·026	12·017
Jan. 27. 1844	16	70	9 30	3 30	11·959	12·007	11·999

42. Vibration of the balance magnet in the vertical plane.

The needle being in its usual position on the supports, the moveable wire of the left micrometer is made to bisect the spider cross; the needle is then vibrated, by means of a small piece of iron, through an angle, varying from 10′ to 5′, and the periods of the cross passing the wire estimated.

TABLE 16.—Values of T, the Time of Vibration of the Balance Needle in a Vertical Plane.

Date.		Number of Vibrations.	Time of one Vibration.		Adopted Mean.	Remarks.
d.	h.		Observed.	Adopted.		
			s.	s.	s.	
1841.						
July 6	0	10	10·72	10·60	10·6	
						Adjustment, &c., after July 23^{d}.
Aug. 3	4	48	10·25	10·04	10·0	
Aug. 3	4	54	10·17			
						August 30^{d}. Agate planes adjusted, and spider's lines inserted instead of silver wires.
Sept. 4	5	36	10·83	10·63	10·6	
Sept. 4	5	84	10·69			
Sept. 4	5	96	10·61			
Sept. 27	5	44	10·69	10·65		
Sept. 27	5	66	10·66			
						Oct. 2^{d} 2^{h}. Needle reversed to determine the deviation of the crosses.
Oct. 2	4	42	11·07	11·06	11·0	
Oct. 2	4	54	11·09			
Oct. 16	4	56	11·08	11·05		
Oct. 16	4	34	11·03			
Oct. 29	4	50	11·03	11·00		
Nov. 20	3	80	10·99	10·97		
Dec. 3	4	18	11·00	10·98		
Dec. 3	4	60	11·01			
1842.						
Jan. 15	5	38	10·70	10·66	10·6	Jan. 1^{d}, &c. Needle removed in order to determine its temperature correction.
Jan. 29	5	46	10·32	10·30	10·1	
Feb. 12	5	30	10·15	10·04		
Feb. 12	5	57	10·19			
Mar. 5	6	63	10·34	10·32		
Mar. 19	5	48	10·15	10·02		
Mar. 19	5½	42	10·12			
						March 22^{d}. Needle vibrated excessively by iron brought near it by visitors.
Apr. 2	6	68	11·02	10·96	11·0	
Apr. 9	5	56	10·94	10·94		
Apr. 16	0	60	11·02	10·96		
Apr. 23	0	36	10·77	10·64	10·5	
Apr 23	0	36	10·72			
Apr. 23	0	30	10·82			
June 20	6	50	10·65	10·60		
June 20	6	40	10·65			
June 25	8	30	10·58	10·56		
June 25	8	50	10·59			
July 16	6	50	10·46	10·42		

TABLE 16—*continued.*

Date.	Number of Vibrations.	Time of one Vibration. Observed.	Time of one Vibration. Adopted.	Adopted Mean.	Remarks.
d. h.		s.	s.	s.	
1842.					
Aug. 2 8	30	10·42	10·40		
Aug. 13 8	40	10·44	10·42		
Sept. 7 23	20	10·52	10·45		
Sept. 7 23	10	10·47			
Sept. 7 23	20	10·54			
Sept. 24 5	40	10·55	10·44		
Oct. 8 2	30	10·39	10·30		
Oct. 8 2	20	10·29			
Oct. 8 2	20	10·36			
Oct. 31 2	10	10·07	10·05	10·0	
Oct. 31 2	30	10·19			
Oct. 31 2	20	10·04			
Oct. 31 2	10	9·96			
Nov. 10 20	20	10·31	10·33		Nov. 10d 6h. Needle vibrated accidentally by steel compasses.
Nov. 10 20	20	10·35			
Nov. 18 23	20	10·04	10·00		
Nov. 18 23	10	9·96			
Dec. 8 3	20	10·04	9·98		
Dec. 8 3	20	10·04			
Dec. 20 2	20	10·05	10·02		
Dec. 20 2	10	10·03			
Dec. 20 2	10	9·98			
Dec. 31 2	10	9·75	9·77		
Dec. 31 2	10	9·84			
Dec. 31 2	20	9·84			

The adopted time of vibration has been obtained from the last observations in each series, and differs slightly from the observed time of the whole series.

TABLE 17.—Effect of the Bifilar and Declination Magnets on the Balance Magnet.

North End of Magnet.		First Series.			Second Series.		
Declination.	Bifilar.	Balance Reading.	Effect of Magnet. Declination.	Effect of Magnet. Bifilar.	Balance Reading.	Effect of Magnet. Declination.	Effect of Magnet. Bifilar.
		Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
N.	W.	−188·0			+231·8		
S.	W.	−188·3	0·2		+231·8	0·1	
N.	W.	−187·7			+232·1		
N.	E.	−183·5		3·4	+234·2		1·7
N.	W.	−186·1			+233·0		

The position of the Balance Needle was altered for the second series of observations.

43. Observations and reductions.

The moveable wires of the two micrometers are made to bisect the crosses of the magnet, the interval between the bisections being the time of the needle's vibration in the vertical plane, 10^s was used; the first coincidence was therefore 5^s before, and the second 5^s after, the minute of observation.

The mean of the two readings is taken for the position of the needle.

The reading is nearly zero when the needle is horizontal. The readings increase negatively or positively as the north pole of the needle moves above or below the horizontal; it is generally above it, and in this case the readings have been subtracted from a constant *plus* the temperature correction, in order that they may always be positive, and increase with increasing force.

44. The variations of the vertical force depend chiefly for their accurate determination on the accuracy of the value of T. There are sources of error, however, in the determination of the latter, which are not taken account of in theory.

From several series of observations made in 1843 and 1844, I have found that the time of vibration in the vertical plane depends on the arc of vibration to a much greater extent than theory would allow; that it is considerably increased if the needle have been *previously* vibrated through a large arc, and the effect of this large vibration remains for a considerable period (at least some weeks), but above all it depends on temperature. The effect of a rise of 1° Fah., is equivalent to an increase in the time of vibration of about $0^s\cdot07$.

The full discussion of these observations must be reserved for another place. It was necessary to mention them here, however, as they affect the reductions in this volume.*

45. The observations are given in micrometer division, it was necessary, therefore, to reduce the value of $\frac{\Delta m}{m}$ to micrometer divisions, for the purpose of correction. The values of T have been placed in groups, and a mean value taken for the period to which the group belongs.

If n be the number of micrometer divisions, α the arc value of one in parts of radius, the equation of equilibrium becomes

$$\frac{\Delta Y}{Y} = n \alpha \cot \theta \frac{T'^2}{T^2} - \frac{\Delta m}{m}$$

$$\frac{\Delta Y}{Y} \frac{T^2}{\alpha \cot \theta T'^2} = n - \frac{\Delta m}{m} \frac{T^2}{\alpha \cot \theta T'^2}$$

The values of $k = \alpha \frac{\cot \theta T'^2}{T^2}$, of $q = -\frac{\Delta m}{m t}$, t being the number of degrees from the assumed zero, and the corresponding value of $\frac{q}{k}$ or the values of q, in micrometer divisions, are given, with the periods to which they apply, in the following table, and at the foot of each page of the Daily Observations.

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* See a paper, entitled "The Balance Magnetometer and its Temperature Correction," in the Transactions of the Royal Society of Edinburgh, Volume xvi., Part i.

The adopted value of

$$\theta = 71^\circ\ 12'.$$

See section 7.

TABLE 18.—Values of *k* and *q* for the Balance Magnetometer, and the periods to which they apply.

Periods to which the Quantities apply.	Value of *k*.	Value of *q*.
1841.		Mic. Div.
d. h. — d. h.		
July 11 20—July 23 5	0·0000127	5·74
Aug. 4 20—Aug. 28 5	0·0000143	5·10
Sept. 5 20—Sept. 30 5	0·0000127	5·74
Oct. 6 20—Nov. 30 5	0·0000118	6·20
1842.		
Jan. 12 20—Jan. 22 5	0·0000127	5·74
Jan. 23 20—March 21 5	0·0000140	5·20
March 21 20—April 16 5	0·0000118	6·20
April 17 20—Oct. 8 5	0·0000130	5·60
Oct. 9 20—Dec. 31 5	0·0000143	5·10

§ 6. OBSERVATIONS FOR THE TEMPERATURE CORRECTIONS OF THE BIFILAR AND BALANCE MAGNETS.

46. *June* 16. 1841.—Experiments were made to determine the effect of temperature on the bifilar and balance magnets. For this purpose, the magnet was placed in a copper trough, and surrounded with ice, or water of the desired temperature. The trough was placed on a stand upwards of 5 feet east of the declination instrument, so that the axis of the magnet should be at right angles to that of the declinometer. A thermometer was placed in the trough beside the magnet. Seven readings of the declinometer were made in each of the following positions, N. pole E., N. pole W., N. pole E., in order to eliminate the changes of declination. The observations are not worth recording, owing to the imperfections of the method; the following is the final result for the bifilar magnetometer, $q = 0{\cdot}000353$.

January 1, 2, &c., 1842. Experiments were made on the balance magnet. The same method was adopted as on June 16, excepting that the balance needle was placed nearer the suspended magnet (within 4 feet); that the needle was repeatedly reversed, and the bifilar magnetometer observed during the experiments.

The discordances of partial results were so great, that only the final result is given here,

$$q = 0{\cdot}0001283.$$

It was evident that no good result could be obtained without an extra declinometer, owing to the necessity of reversing the needle, in order to eliminate the changes of declination, when the slightest alteration of position would have far more effect than the greatest change of temperature.

47. Having had a small wooden house erected at some distance from the Observatory, and having formed an extra or unifilar magnetometer, observations were made to determine the temperature corrections, according to the method recommended in the "Revised Instructions," by the Committee of the Royal Society.

The magnets were placed in a copper trough, as in the previous observations, and the temperature varied by means of ice and water of different temperatures. The declination magnet was observed at the same seconds as the deflected magnet, and the bifilar immediately before and after each temperature.

Owing to the small deflection, the observations on the first day were valueless, and are not given here. The centre of the balance magnet was placed afterwards at a distance of about 3 feet from the suspended magnet.

48. The following tables contain the observations.

The results in the last column are obtained from the formula

$$\left.\begin{array}{r}-\mathrm{Q}\\ -q\end{array}\right\} = \frac{\overline{u-u_0}-r\,\overline{d-d_0}}{\mathrm{D}\,(t-t_0)} + \frac{k\,(b-b_0)}{t-t_0}$$

where u and u_0 are the unifilar readings, d and d_0 the declinometer readings, b and b_0 the bifilar magnetometer readings at the temperatures t and t_0 of the deflecting magnet; D the mean deflection; r the coefficient for reducing the declinometer scale divisions to those of the unifilar; and k the value of the bifilar magnetometer scale divisions, in parts of the whole horizontal force.

During the observations for the temperature correction of the bifilar magnet, another magnet was substituted for the bifilar magnetometer; for it

$$k = 0\cdot0002263\,;$$

during the observations for the balance magnet, the following were the values of K

$$\left.\begin{array}{l}\text{Aug. } 23^{\text{d}} \text{ 1843,}\\ \text{Sept. 1 1843,}\\ \text{Sept. 2 1843,}\end{array}\right\} k=0\cdot0001204 \qquad \left.\begin{array}{l}\text{Nov. 13 1843,}\\ \text{Jan. 27 1844,}\end{array}\right\} k=0\cdot0001300.$$

Owing probably to currents of air, the difference of the declinometer and unifilar scale readings at the beginning and end of the series Aug. 23, 24, and 31, Table 20, had varied considerably. The change was supposed uniform; and the declinometer readings adopted are those interpolated for the change.

TABLE 19.—Observations to determine the Temperature Correction of the Bifilar Magnet.

Göttingen Mean Time.				Temperature of Bifilar Magnet.	$t-t_0$.	Reading of Unifilar.	Reading of Declinometer reduced $=r\,d$.	$u-u_0$ *minus* $r\,(d-d_0)$.	Bifilar.		− Q.
									Reading Corrected.	Thermometer.	
	d.	h.	m.	°	°	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	°	
Nov.	9	0	13	Magnet	Away.	260·69	153·86				
		0	55	34·97		7·72	154·20		149·21	36·7	
		1	14	57·60	22·63	10·11	154·69	−1·90	150·07	36·8	−0·000326
		1	30	78·05	20·45	10·85	153·86	−1·57	150·99	36·9	−0·000296
		1	48	60·72	17·33	10·06	154·25	−1·18	151·18	37·0	−0·000274
		2	6	35·10	25·62	9·33	155·17	−1·65	151·28	37·2	−0·000258
		2	24	57·80	22·70	12·05	156·28	−1·61	151·30	37·5	−0·000283
		2	45	81·10	23·30	14·63	156·73	−2·13	152·71	37·8	−0·000352
		3	1	59·50	21·60	12·88	156·56	−1·58	154·43	37·9	−0·000311
		3	18	35·97	23·53	11·96	157·05	−1·41	155·13	38·1	−0·000246
		3	36	57·55	21·58	13·55	157·09	−1·55	155·64	38·4	−0·000282
		3	52	81·35	23·80	15·77	157·58	−1·73	154·66	38·6	−0·000342
		4	8	59·05	22·30	13·84	157·03	−1·38	155·78	38·7	−0·000258
		4	24	35·25	23·80	12·54	157·78	−2·05	155·77	38·8	−0·000344
		4	41	69·65	34·40	15·40	157·92	−2·72	155·67	38·8	−0·000315
		5	4	34·65	35·00	13·14	158·49	−2·83	155·31	38·9	−0·000319
		5	20	Magnet	Away.	266·39	158·76				
Nov.	9	23	17	Magnet	Away.	265·41	157·84				
	9	23	49	33·65		9·17	156·90		149·65	38·1	
	10	0	8	59·12	25·47	10·55	156·67	−1·61	150·18	38·2	−0·000245
		0	29	80·60	21·48	11·78	156·33	−1·57	150·60	38·5	−0·000285
		0	45	61·85	18·75	10·39	156·31	−1·37	150·92	38·6	−0·000293
		1	5	35·30	26·55	7·97	155·66	−1·77	151·86	38·7	−0·000271
		1	22	58·90	23·60	9·87	155·87	−1·69	152·62	38·8	−0·000275
		1	37	77·50	18·60	11·36	155·88	−1·48	152·82	38·8	−0·000312
		1	55	56·60	20·90	9·93	156·06	−1·61	153·13	38·9	−0·000308
		2	11	34·50	22·10	8·12	155·90	−1·65	153·11	38·9	−0·000295
		2	28	61·35	26·85	10·38	156·20	−1·96	153·52	39·0	−0·000285
		2	46	83·50	21·15	12·43	156·59	−1·66	153·78	39·0	−0·000306
		3	3	57·90	25·60	10·84	156·79	−1·79	152·51	39·1	−0·000265
		3	20	35·75	21·15	9·02	156·83	−1·86	150·84	39·2	−0·000329
		3	38	58·65	22·90	10·14	156·47	−1·48	152·76	39·4	−0·000236
		3	57	78·75	20·10	13·35	157·72	−1·96	152·75	39·6	−0·000385
		4	18	36·25	42·50	10·20	157·76	−3·19	151·65	39·7	−0·000291
		4	43	68·30	32·05	12·85	157·91	−2·50	153·49	39·8	−0·000294
		4	55	Magnet	Away.	264·91	157·65				

49. The mean of the partial results, November 9, is Q=0·0002979.
.... 10, is Q=0·0002915.
The mean of all the partial results is Q=0·0002945.

Correction for the expansion of the silver wires and brass grooved wheel is 0·000010 (No. 32.), whence the adopted value,

$$q=0{\cdot}000304.$$

TABLE 20.—Observations to determine the Temperature Correction for the Balance Magnet.

Göttingen Mean Time.			Temperature of Balance Magnet.	$t-t_0$.	Reading of Unifilar.	Reading of Declinometer reduced $=r\,d$.	Adopted reading of Declinometer.	$u-u_0$ *minus* $r\,(d-d_0)$.	Bifilar.		$-q$.
									Reading corrected.	Thermometer.	
d.	h.	m.	°	°	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	°	
Aug. 23	20	31	Magnet	Away.	270·35	161·48					
	21	54	59·45	12·75	476·03	159·51	158·36	+0·42	125·30	53·3	+0·0000524
	22	44	46·70	19·30	469·02	153·61	151·77	−0·39	136·34	54·0	−0·0000956
	23	11	66·00	24·00	467·06	152·44	150·20	−0·22	134·62	54·8	−0·0000311
	23	38	90·00	20·00	465·47	151·41	148·83	−0·52	135·56	55·7	−0·0001780
Aug. 24	0	17	70·00		462·53	148·49	145·37		142·98	57·1	
	0	46	Magnet	Away.	250·98	145·63					
	1	28	66·95	28·45	459·13	145·54	145·86	−0·48	136·57	60·1	−0·0001130
	2	1	38·50	24·95	463·32	149·00	149·57	−0·20	143·82	61·2	−0·0000259
	2	29	63·45		464·33	150·00	150·78		143·58	62·3	
	2	42	Magnet	Away.	255·99	149·76					
	3	0	66·15	20·85	464·19	149·91	150·18	−0·64	145·28	63·8	−0·0000872
	3	29	87·00	24·10	464·08	150·01	150·71	−0·54	155·87	64·4	−0·0000694
	3	57	62·90	25·60	466·53	151·51	152·62	−0·87	146·51	65·1	−0·0001743
	4	28	37·30	31·85	474·77	158·42	159·99	−0·84	147·32	65·8	−0·0001225
	4	56	69·15		470·58	154·66	156·64		147·37	66·5	
	5	10	Magnet	Away.	262·89	154·47					
Aug. 31	22	25	Magnet	Away.	260·23	153·71					
	23	10	60·95	18·85	461·86	150·92	150·62	−0·19	123·47	62·9	
	23	34	42·10		458·34	147·39	146·91		124·88	63·1	−0·0000582
Sept. 1	0	0	Magnet	Away.	250·82	144·87					
	0	21	64·15	21·05	453·52	142·97		−0·36	120·09	63·9	−0·0000669
	0	38	85·20	18·95	453·42	143·23		−0·11	122·90	64·0	−0·0000650
	0	59	66·25	23·05	453·45	143·15		−0·28	128·72	64·4	−0·0000895
	1	20	43·20	21·65	453·06	142·48		−0·59	134·44	64·9	−0·0000871
	1	43	64·85	25·70	451·08	141·09		−0·56	142·78	65·0	−0·0001184
	2	3	90·55	25·15	450·34	140·91		−0·70	140·30	65·2	−0·0000813
	2	24	65·40	15·30	452·06	141·93		−0·96	128·80	65·4	−0·0001586
	2	46	80·70	20·70	449·00	139·83		−0·36	147·70	65·6	−0·0000491
	3	10	60·00	19·15	447·49	137·96		−1·37	141·49	65·7	−0·0002329
	3	35	40·85	23·85	455·50	144·60		−1·22	122·78	65·9	−0·0000885
	3	58	64·70	21·90	455·93	146·25		−0·35	154·87	66·0	−0·0001071
	4	18	86·60	20·40	456·90	147·57		−0·43	149·65	66·2	−0·0000533
	4	41	66·20	24·85	453·95	144·19		+0·35	141·19	66·5	−0·0000326
	5	6	41·35	24·20	453·60	144·19		+0·95	162·14	66·7	+0·0000893
	5	29	65·55	19·95	460·84	150·48		+0·16	141·45	66·9	+0·0000288
	5	49	85·50	23·50	467·10	156·58		−0·87	139·71	67·0	−0·0001348
	6	10	62·00		472·23	160·84			130·62	67·0	
	6	46	Magnet	Away.	260·07	153·59					
Sept. 1	23	8	Magnet	Away.	251·32	145·99					
	23	48	65·90	23·70	466·17	147·68		−0·21	106·84	66·3	−0 0000162
Sept. 2	0	6	89·60	22·65	467·63	149·35		−0·36	111·89	66·7	−0·0000726
	0	22	66·95	27·55	466·76	148·12		−0·24	111·42	67·1	−0·0000732
	0	39	39·40	24·20	465·97	147·09		−0·22	118·74	67·4	−0·0000598
	0	57	63·60	23·85	463·93	145·27		−0·62	115·37	67·7	−0·0000958
	1	18	87·45	21·20	463·45	145·41		−0·16	120·71	68·0	−0·0000720
	1	37	66·25	24·65	462·73	144·53		−0·99	127·09	68·3	−0·0001282
	1	57	41·60	23·40	465·04	145·85		−0·87	114·50	68·6	−0·0001035
	2	13	65·00	18·15	463·26	144·94		−0·22	128·50	68·7	−0·0000757
	2	30	83·15	19·70	462·30	144·20		−0·23	125·73	68·9	−0·0000816
	2	50	63·15	23·10	462·77	144·44		−0·77	130·04	69·0	−0·0001185
	3	10	40·35	24·65	465·88	146·78		−0·28	122·56	69·0	−0·0000733

TABLE 20.—*continued.*

Göttingen Mean Time.			Temperature of Balance Magnet.	$t-t_0$.	Reading of Unifilar.	Reading of Declinometer reduced $=r\,d$.	$u-u_0$ *minus* $r\,(d-d_0)$.	Bifilar.		$-q$.
								Reading corrected.	Thermometer.	
d.	h.	m.	°	°	Sc. Div.	Sc. Div.	Sc. Div,	Sc. Div.	°	
Sept. 2	3	28	65·00	22·75	465·90	147·08	−0·48	118·54	69·0	−0·0000891
	3	45	87·75	21·45	466·23	147·89	−0·27	120·54	69·0	−0·0000867
	4	3	66·30	26·15	467·04	148·43	−0·09	125·39	69·2	−0·0000849
	4	22	40·15	25·00	467·95	149·25	−0·26	140·27	69·4	−0·0000626
	4	44	65·15	23·00	468·45	150·01	−0·34	137·49	69·5	−0·0000706
	5	1	88·15	22·70	469·22	151·12	−1·11	137·34	69·6	−0·0001581
	5	19	65·45	26·90	473·31	154·10	+0·14	123·61	69·7	−0·0000276
	5	37	38·55	33·45	473·44	154·37	−0·20	135·25	69·7	−0·0000332
	5	57	72·00		476·52	157·65		133·87	69·7	
	6	13	Magnet	Away.	272·00	162·31				
Nov. 12	22	55	Magnet	Away.	266·58	159·61				
	23	22	33·70	25·50	11·37	158·02	−0·32	181·77	41·1	−0·0000514
	23	35	59·20	20·90	10·72	157·05	−0·05	181·38	41·2	−0·0000071
	23	45	80·10	22·30	10·74	157·02	−0·73	182·78	41·3	−0·0001398
	23	57	57·80	22·80	8·56	155·57	−0·51	184·66	41·5	−0·0000836
Nov. 13	0	8	35·00	19·90	7·50	155·02	−0·34	183·87	41·6	−0·0000619
	0	19	54·90	24·05	8·73	155·91	−0·30	184·69	41·7	−0·0000442
	0	30	78·95	20·70	8·99	155·87	−0·46	185·60	41·8	−0·0000814
	0	41	58·25	22·95	8·19	155·53	−0·43	184·63	41·9	−0·0000784
	0	53	35·30	23·75	7·51	155·28	−0·38	185·45	42·0	−0·0000443
	1	7	59·05	15·30	6·84	154·23	−0·28	188·86	42·2	−0·0000560
	1	20	74·35	18·35	7·23	154·34	−0·18	190·75	42·5	−0·0000128
	1	32	56·00	21·70	7·43	154·72	−0·65	187·12	42·7	−0·0001538
	1	44	34·30	26·40	3·66	151·60	−0·45	193·11	42·9	−0·0000888
	1	56	60·70	21·05	5·87	153·36	−0·51	188·72	43·0	−0·0000988
	2	7	81·75	22·40	7·58	154·56	−0·16	188·16	43·3	−0·0000299
	2	18	59·35	24·50	8·14	155·28	−0·11	188·46	43·6	−0·0000251
	2	29	34·85	24·65	8·33	155·58	−0·66	189·86	43·9	−0·0000882
	2	40	59·50	21·50	8·82	155·41	−0·61	193·12	44·1	−0·0000854
	2	50	81·00	23·00	8·27	154·25	−0·55	197·47	44·3	−0·0000903
	3	2	58·00	24·45	7·39	153·92	−0·21	196·79	44·7	−0·0000150
	3	14	33·55	21·45	7·68	154·42	−0·44	193·26	44·9	−0·0000511
	3	26	55·00	29·25	4·59	151·77	−0·30	188·37	45·0	−0·0000618
	3	37	84·25	23·10	2·84	149·72	−0·99	183·56	45·1	−0·0001453
	3	48	61·15	27·25	0·27	148·14	−0·05	179·40	45·5	−0·0000117
	3	59	33·90	23·05	2·58	150·40	−0·25	178·46	45·7	−0·0000411
	4	9	56·95	26·40	3·80	151·37	−0·48	178·75	45·8	−0·0000832
	4	21	83·35	46·90	5·73	152·82	−0·60	176·38	45·9	−0·0000653
	4	38	36·45	36·85	5·71	153·40	−0·59	181·76	46·0	−0·0000840
	4	53	73·30	38·40	8·42	155·52	−0·19	175·82	46·0	−0·0000448
	5	18	34·90		10·54	157·83		183·30	46·0	
	5	30	Magnet	Away.	267·75	160·90				
1844.										
Jan. 27	0	16	Magnet	Away.	260·87	157·22				
	1	9	35·47	30·58	12·08	154·78	−0·62	189·43	45·0	−0·0000836
	1	22	66·05	28·00	12·93	155·01	−0·37	189·11	45·0	−0·0000536
	1	36	38·05	26·32	13·59	156·04	−0·39	189·10	45·0	−0·0000579
	1	49	64·37	27·37	14·67	156·73	−0·44	189·54	45·0	−0·0000699
	2	1	37·00	28·05	14·21	156·71	−0·79	190·53	45·0	−0·0001106
	2	17	65·05	26·88	15·30	157·01	−0·63	191·25	45·1	−0·0000911
	2	32	38·17	27·63	15·52	157·86	−0·40	190·43	45·1	−0·0000589
	2	48	65·80	26·85	16·76	158·70	−0·37	190·39	45·2	−0·0000557

TABLE 20—*continued.*

Göttingen Mean Time.	Temperature of Balance Magnet.	$t-t_0$.	Reading of Unifilar.	Reading of Declinometer reduced $=r\,d$.	$u-u_0$ *minus* $r\,(d-d_0)$.	Bifilar.		$-q$.
						Reading corrected.	Thermometer.	
d. h. m.	°	°	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	°	
Jan. 27 3 2	38·95	24·75	16·96	159·27	−0·46	190·35	45·3	−0·0000766
3 21	63 70	27·35	18·05	159·90	−0·31	190·12	45·5	−0·0000480
3 40	36·35	32·20	17·96	160·12	−0·43	190·47	45·6	−0·0000625
3 58	68·55	30·30	19·14	160·87	−0·57	188·42	45·6	−0·0000681
4 13	38·25	24·30	18·66	160·96	−0·54	186·50	45·7	−0·0000851
4 31	62·55	26·70	18·89	160·65	−0·53	187·44	45·8	−0·0000853
4 49	35·85	29·40	18·60	160·89	−0·64	188·42	45·9	−0·0000954
5 4	65·25	29·35	19·46	161·11	−0·40	186·82	45·9	−0·0000650
5 20	35·90		19·11	161·16		189·01	45·9	
5 31	Magnet	Away.	265·82	160·84				

50. The means of the partial results on the different days were given weights depending on the formula,

$$\text{Weight} = \frac{\text{Number of partial results}}{\text{Mean of the squares of the partial results } \textit{minus} \text{ the square of the mean}}$$

Aug. 23^{d}—24^{d} 1843. Mean of the partial results $q = 0{\cdot}0000845$ Weight = 49
Aug. 31^{d}—Sept. 1^{d} ... . $q = 0{\cdot}0000768$ .... = 79
Sept. 1^{d}— 2^{d} ... . $q = 0{\cdot}0000792$ .... = 425
Nov. 12^{d}—13^{d} ... . $q = 0{\cdot}0000620$ .... = 320
Jan. 27^{d} 1844. .... $q = 0{\cdot}0000729$ .... = 1157

Whence the resulting value,

$$q = 0{\cdot}000073.$$

51. Having much doubt as to the accuracy and sufficiency of this method of determining the temperature correction, and feeling its insufficiency especially in the case of the balance magnet, where the time of vibration in a vertical plane is employed, in whatever form the corrected observations be given, I attempted to deduce the temperature corrections from the usual daily observations in 1843 and 1844.

For the methods adopted in deducing these results, I must refer to the paper cited, No. 44.

It is enough to mention here the final results:

For the bifilar magnet $q = 0{\cdot}000247$ in parts of the whole horizontal force. This value has been used in correcting the Abstracts of Results at the end of this volume.

For the balance magnet $q = 7{\cdot}90$ micrometer divisions.

As the observations for 1843 gave the same result for the balance magnet as those for 1844, independently of changes of adjustment and times of vibrations, the value of $q = 7{\cdot}90$ Mic. div. has been applied in the abstracts of the observations.

§ 7. INCLINOMETER.

52. The Dip Instrument is by **ROBINSON** of London. The vertical circle, 9½ inches in diameter, is divided to 10′; and 1′ is estimated with the aid of lenses attached to the instrument. The horizontal circle, 6 inches in diameter, with a vernier, reads to 1′. There are two needles, marked No. 1 and No. 2, and one end of each needle is marked A, the other end, B.

Till 1843, the instrument occupied the pillar I, in the plan, next to the declinometer, and it was necessary to remove the declination magnet during observations of dip.

The reading of the horizontal circle, for the vertical circle in the magnetic meridian, was obtained with the aid of a horizontal needle carried on a pivot, whose arms rest on the Ys of the instrument.

53. The dipping needle is observed in four positions, with one end dipping, namely, the circle being in the meridian, with its graduated face east and west, the marked side of the needle being with the graduated face and from it; as each extremity of the needle is observed, there are thus eight readings obtained. The poles being changed, and the other end dipping, other eight readings are similarly obtained. The mean of the sixteen readings is taken for the dip. In this volume, the mean of each eight readings is given.

In changing the poles, the needle was placed on a small wooden block having a hole to receive the axle, and received eight strokes on each face from two small magnets.

The needle, No. 1, was generally used. The level of the agate planes was occasionally verified by means of a small level. This had to be done always with the door shut, as it is in observations; the level varied with the door open.

54. Observations were made in different azimuths on April 18. and May 2. 1843, in order to determine the correction due to the vertical copper circle and to the axle of the needle.

η and η' being the inclinations observed in two planes, at right angles to each other, the true dip θ is deduced by the formula

$$\cot^2 \theta = \cot^2 \eta + \cot^2 \eta'$$

The following tables contain the observations and results.

In reading these observations, the circle was considered to be graduated from 0° to 180°, commencing with the right side of the horizontal diameter, counting down, and from the left side of the same diameter, counting up.

TABLE 21.—Observations for Magnetic Dip in different Azimuths.

Azimuth.	B Dipping.				A. Dipping.				Mean.
	Limb E.		Limb W.		Limb E.		Limb W.		
	Face of Needle		Face of Needle		Face of Needle		Face of Needle		
	E.	W.	E.	W.	E.	W.	E.	W.	
°	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′	° ′
0	73 7·0	69 39·5	107 20·5	110 48·0	70 10·0	73 31·5	110 29·0	106 56·0	71 21·81
30	75 3·0	71 38·5	104 54·5	109 1·0	72 12·0	76 2·0	108 31·0	104 23·5	73 30·69
120	101 44·5	98 3·0	78 31·5	82 10.0	97 32·0	101 40·5	82 49·0	78 54·5	80 25·62
60	82 22·0	78 19·0	97 54·0	101 51·0	78 54·5	82 55·0	101 40·0	97 24·0	80 27·69
150	109 20·0	104 54·5	71 19·0	74 54·0	104 34·0	108 26·0	75 48·0	72 19·0	73 23·19
0	73 35·5	69 19·0	107 8·0	111 19·5	70 1·0	73 38·0	110 31·0	106 46·0	71 21·12
15	73 55·0	69 43·0	106 31·0	111 0·0	70 31·5	74 10·0	110 9·0	106 22·0	71 47·19
30	75 38·0	70 39·0	104 26·0	110 4·0	72 5·0	75 58·0	108 48·0	104 33·5	73 18·56
45	79 9·0	73 40·0	101 17·0	106 38·0	74 56·0	78 57·0	105 39·0	101 31·0	76 27·12
60	83 12·0	77 39·0	97 7·0	102 54·0	78 44·0	83 0·0	101 54·0	97 18·0	80 25·25
75	87 56·0	82 19·5	92 30·0	98 16·0	83 12·5	87 21·5	97 23·0	93 5·5	84 56·87
90	93 8·5	87 15·5	87 22·0	93 10·5	87 58·0	92 19·0	92 30·0	88 4·5	89 46·50
105	98 14·0	92 26·0	82 24·0	87 58·0	92 59·0	97 17·0	87 27·5	83 12·5	85 0·75
120	102 49·0	97 12·0	77 46·0	83 11·0	97 6·0	101 51·0	83 2·0	78 42·5	80 27·94
135	106 42·0	101 21·0	72 51·0	79 9·0	101 26·0	105 40·0	78 57·0	74 53·0	76 20·12
150	110 2·5	104 30·0	70 50·0	75 42·5	104 26·5	108 49·5	76 1·0	72 1·0	73 20·75
165	111 3·0	106 34·0	69 44·0	74 0·0	106 19·0	110 0·0	74 10·5	70 24·5	71 47·87

TABLE 22.—Magnetic Dip deduced from the Observations in Table 23.

Azimuths.	η.	η'.	θ.
° °	° ′	° ′	° ′
30 and 120	73 30·69	80 25·62	71 11·0
60 ... 150	80 27·69	73 23·19	71 5·9
0			71 21·8
0 and 90	71 21·12	89 46·50	71 20·9
15 ... 105	71 47·19	85 0·75	71 11·9
30 ... 120	73 18·56	80 27·94	71 2·1
45 ... 135	76 27·12	76 20·12	71 6·5
60 ... 150	80 25·25	73 20·75	71 2·6
75 ... 165	84 56·87	71 47·87	21 11·9

In the first series, giving the observation at Azimuth 0° a value

$$\theta = 71^\circ\ 12'.9\,;\ \text{Correction for Needle No. 1} = -\ 8'{\cdot}9$$

in the second series,

$$\theta = 71^\circ\ 9'.3\,;\ \text{Correction for Needle No. 1} = -\ 11'{\cdot}8$$

In the Abstracts of Magnetic Dip the observations have been corrected by $-\ 12'$.

METEOROLOGICAL INSTRUMENTS.

§ 8. BAROMETER.

55. A Mountain Barometer, by **ADIE & SON**, was used from July 1841 till January 1842. The scale is engraved on the brass tube, and reads, with a vernier, to 0.002 in.; the mercury in the limb of the cistern is adjusted at each observation to a constant zero point; the tube is about 0.15 inch diameter.

56. After January 1. 1842, a Standard Barometer, by **NEWMAN**, was placed in the Observatory. The diameter of the boiled tube is 0.552 in.; the scale is attached to a brass rod, terminating in an ivory point, which, at each observation, is made to meet its image in the mercury of the cistern. The vernier professes to read to 0·002 in., and 0·001 may be estimated; but the graduation is so inexact, as to give changes in error from 0·002 to 0·003 in.

The barometer by **NEWMAN** was compared indirectly with the standard of the Royal Society, London, by means of one belonging to the **DUKE of ARGYLE**. The comparisons were made in London.

TABLE 23.—Comparisons of the Duke of Argyle's Standard Barometer with the Standard Barometer of the Royal Society of London.

Royal Society's Standard.			Duke of Argyle's Standard.			Error of Duke of Argyle's Standard.
Flint Glass.	Crown Glass.	Temperature.	Height.	Temperature.	Corrected to Temperature of R. S. Standard.	
in.	in.	°	in.	°	in.	in.
29·280	29·274	36·9	29·302	37·2	29·301	+0·024
29·490	29·482	39·0	29·496	39·0	29·496	+0·010
29·462	29·454	40·0	29·460	40·6	29·458	+0·000
29·252	29·246	41·6	29·256	42·0	29·255	+0·006
29·366	29·358	41·3	29·372	42·0	29·370	+0·008
29·210	29·204	43·2	29·214	43·5	29·213	+0·006

The mean correction of the Duke of Argyle's Barometer to the Royal Society's is $-\overset{\text{in.}}{0}.009$.

TABLE 24.—**Comparisons of the Makerstoun Standard Barometer with the Duke of Argyle's Standard Barometer.**

Duke of Argyle's Standard.	Makerstoun Standard.	Makerstoun Standard *minus* Duke of Argyle's Standard.
in.	in.	in.
30·046	30·050	+0·004
29·596	29·598	+0·002
29·594	29·596	+0·002
29·172	29·176	+0·004
29·508	29·512	+0·004
29·552	29·556	+0·004
29·224	29·228	+0·004
29·446	29·450	+0·004
29·562	29·560	−0·002

The mean correction of the Makerstoun Standard Barometer to the Duke of Argyle's is $-\overset{\text{in.}}{0}\cdot003$, and, therefore, to the Royal Society's $-\overset{\text{in.}}{0}\cdot012$.

From seventeen comparisons, the correction of ADIE No. 1 to the Makerstoun standard is − 0·005.

57. The observations are corrected for temperature by SCHUMACHER's Tables, given in the Report of the Royal Society; those of the mountain barometer are corrected by the constant − 0·017, and of the standard, by − 0·012, the reduction to the Royal Society's standard.

The cistern is 213 feet above the level of the sea.

§ 9. THERMOMETERS.

58. The dry and wet bulb thermometers are by ADIE and SON. The bulbs are 0·3 inch in diameter, and a tenth of a degree can be estimated on the scales. They are placed 4 inches apart, on a wooden slab, the bulbs projecting below it. They were placed, from July 1841 till January 22. 1842, in the middle of a wooden case, the sides and tops of which were formed like Venetian blinds.

The case was quite open below and on the side next the observatory, the thermometers being about 9 inches distant from the middle window, on the north side of the observatory; and after January 22. 1842, from the west window on the same side.* This change was rendered necessary by the stove being brought to the middle of the observatory.

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* There is no doubt that these thermometers were placed in a bad position, being open to the effect of radiation from the observatory. This was, to some extent, unavoidable, as there was neither recess nor door on the north wall. Early in 1843, I had the thermometers placed on a revolving case, which could be turned by means of cords and pulleys from within the observatory when required, and left afterwards with a good north exposure.

59. The maximum and minimum register thermometers are also by **ADIE** and **SON**. These thermometers, on **RUTHERFORD**'s construction, were 4 feet above the ground, near the east window, facing the north, and protected from the sun's rays by projecting sides of wood. The roof was of copper, till August 1842, when one of wooden spars, shelving to the south, was substituted, as the sun shone on the copper top at rising and setting in the summer months.

60. The thermometer of the bifilar magnetometer is by **ROSS** of London, and of the balance magnetometer by **ROBINSON**.

61. The following table contains the corrections of the thermometer to a standard thermometer by **NEWMAN**; the comparisons being made in freezing mixtures and water.

TABLE 25.—Corrections of Thermometers to Newman's Standard Thermometer.

Temperature.	Dry.	Wet.	Max.	Min.	Bifilar.	Balance.
16°	−0·5°	−0·5°	−0·1°	−0·2°	+0·1°	−0·2°
22	−0·5	−0·5			−0·2	−0·8
32	−0·6	−0·5	−0·1	+0·1	−0·1	−0·4
43	−0·5	−0·4	−0·4	+0·2	−0·3	−0·6
55	−0·4	−0·3	−0·4	+0·3	−0·5	−0·4
61	−0·2	−0·1	−0·4	+0·4	−0·4	−0·3
71	0·0	+0·1	−0·1	+0·5	−0·2	−0·2
80	+0·1	+0·2	+0·1	+0·5	0·0	+0·2
90	+0·1	+0·3			0·0	+0·1

All the readings of the thermometers in this volume have been corrected by the above quantities.

§ 10. RAIN-GAUGES.

62. The rain-gauge A was placed in an inclosed space on the top of the Observatory hill, June 26. 1842. Its funnel mouth is 6.1 inches in diameter, 8 inches above the soil, and 218 feet above the level of the sea. The quantity of rain is measured by pouring it into a graduated glass tube.

The gauge B is placed on the top of the greenhouse. The funnel mouth is 6.7 inches in diameter, 18 feet from the ground, 192 feet above the level of the sea, and 680 feet NNE. of the gauge A. This gauge is sheltered by trees to the E. and NE., and its indications are, therefore, less trustworthy, especially during E. and NE. winds. The quantity of rain received is also affected by gusts of wind deflected from the sloping roof.

The daily observations for this gauge, in the month of May 1842, were lost; the sum for the month will, however, be found in the Abstract.

In the Abstract, the monthly readings of another gauge C are given. This gauge is placed in the centre of the Makerstoun garden, with a good exposure; the funnel mouth is 6.7 inches in diameter, 6½ feet above the soil, 171 feet above the level of the sea, and about 620 feet N. by E. of the gauge A. The gauges B and C are about 180 feet distant.

The gauges B and C were observed by Mr MACGALL, the head gardener.

§ 11. ANEMOMETER.

63. Previously to August 26. 1842, there was no vane to be relied on, and no instrument for determining the force of the wind before October 21. 1842.

The estimations of direction were generally made with a handkerchief as a flag, and the force was estimated; the scale adopted being, calm 0, and boisterous 6. Owing to the rarity of strong winds, the one extremity of the scale was not well understood, and in the other the estimations were much too high.

64. A vane was erected by Messrs ADIE and SON, on the north wall of the observatory, which, by means of a rod and geering-wheels, indicated the direction on a dial-plate within the observatory.

65. An anemometer made by Messrs ADIE and SON, and invented by Mr R. ADIE of Liverpool,* was placed at the north-east corner. In this instrument the wind blows down a tube, the opening of which, at the back of the vane, is always presented to the wind. The tube is bent up at the lower extremity into a vessel inverted in a cylinder full of water. This vessel is suspended by a cord passing over a wheel, and is balanced by a weight acting on a spiral. An index attached to the common axle, shews the pressure, on a dial, in pounds of pressure on a square foot of surface, and leaves a moveable index at the maximum. The spiral on which the weight acts is an involute of a circle, in order that the divisions on the dial may be nearly of equal size throughout.

66. Comparisons of estimated pressure, with the indications of the anemometer, shewed that the estimations under 2·0 were nearly equivalent to the same quantities by the anemometer, increasing above that, till 4·0 might probably be equivalent to a pressure of 8·0 pounds.

67. The way in which this instrument is observed is as follows:—About 2^m before the observation hour, the highest pressure shewn by the independent index is registered as the maximum pressure; this index is then put back to zero, and from 7^m to 10^m after, the position which the index has attained is noted as the *present* pressure, and the index again set.

68. It is conceived that, on the whole, this instrument is trustworthy. It is occasionally, however, liable to slight derangements. A cup at the top contains mercury, in which the tubular portion of the vane turns; this fills with rain, which, when frozen, prevents the vane turning its aperture to the wind.

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* Described and figured by Dr TRAILL in his Physical Geography.

§ 12. STATE OF THE SKY.

69. After April 27. 1842, the quantity of clouds is estimated; the whole hemisphere covered with clouds being 10; and no clouds, 0.

After the same date, the motions of the clouds were estimated. A marked portion of cloud, which passes nearly through the zenith, is watched till the direction is found in which it seems to run down one corner of the Observatory. About the end of 1843, the points of the compass, referred to each corner of the Observatory, were marked upon the surrounding paling; before this, the direction was estimated very nearly, as the walls of the Observatory are in the meridian and prime vertical.

70. The nomenclature adopted is that of **HOWARD**, with a few combinations. The term *scud* refers to that loose, generally amorphous, and often rainy, cloud which is the lowest of all excepting the stratus. The state of the sky is generally observed after the magnetometers, at each observation hour.

71. The remarks on the weather, after May 1. 1842, were too lengthy to print on the same page with the other meteorological observations; an abstract has been given there, and the original remarks printed in an Appendix.

§ 13. GENERAL AND RECAPITULATORY REMARKS.

72. As there was no computing-room apart from the Observatory, a small copper stove was placed in the south-east anteroom, in order that the latter might be used in the winter months for this purpose. In January 1842, this was removed, and a larger copper stove placed in the position S in the plan, from a belief that it would keep the temperature within the Observatory more uniform.*

73. The mean-time clock is by **DENT**; it is kept at Göttingen mean time, the errors being determined by comparisons with the transit clock in the Astronomical Observatory. The rate is always kept very small.

74. The time used throughout this volume is Göttingen mean solar time, astronomical reckoning. The Gottingen time is $49^{m}\ 50^{s}$ in advance of the Makerstoun time.

75. In the daily observations 1841, the bifilar magnetometer was observed 2½ minutes *after*, and the balance magnetometer 2½ minutes *before*, the minute of the declination observation.

76. During the term-day observations 1841, the bifilar and balance magnetometers were observed alternately 2½ minutes after the minute of declination observation.

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* Early in 1843 I discontinued the use of a stove, and ultimately had it removed.

77. In the daily observations 1842, the bifilar magnetometer was observed 2 minutes *after*, and the balance magnetometer 2 minutes *before*, the minute of declination observation.

During the term-day observations 1842, the bifilar magnetometer was observed 2 minutes *after*, and the balance magnetometer 4 minutes *after*, the minute of declination observation.

78. The following is the arrangement of the observers on the term-days.

TABLE 26.—Initials of Observers for each Hour of the Term-Days, from July 1841 till December 1842.

Göttingen Hour.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
10	R	B	A	R	B	R	R	B	W*	R	A	D	B	H	A	D	B	D
11	R	B	A	R	B	R	R	B	W	R	A	D	B	H	A	D	B	D
12	H	B	A	R	B	R	R	B	W	R	D	D	B	H	A	D	B	D
13	H	H	H	A	B	R	R	B	W	R	D	D	B	H	A	D	B	D
14	A	H	H	A	A	A	H	A	A	A	B	B	H	A	D	B	C	H
15	A	H	H	A	A	A	H	A	A	A	B	B	H	A	D	B	C	H
16	B	R	R	B	A	A	H	A	A	A	B	B	H	A	D	B	C	H
17	B	R	R	B	A	A	H	A	A	A	B	B	H	A	D	B	C	H
18	R	R	R	B	H	H	B	H	H	H	H	H	D	B	B	H	D	C
19	R	A	B	H	H	H	B	H	H	H	H	H	D	B	B	H	D	C
20	H	A	B	H	R	H	B	R	H	H	H	H	D	B	B	H	D	C
21	H	A	B	H	R	H	B	R	H	H	H	H	D	B	B	H	D	C
22	A	B	A	R	B	B	A	R	R	B	A	A	A	D	H	A	H	B
23	A	B	A	R	B	B	A	R	R	B	A	A	A	D	H	A	H	B
0	B	B	A	A	A	B	A	B	R	B	A	A	A	D	H	A	H	C
1	B	H	H	A	A	B	A	B	W	B	A	A	A	D	H	A	H	B
2	R	H	H	A	H	R	R	A	W	R	D	B	B	A	A	B	B	B
3	R	H	H	A	H	R	R	A	A	R	D	B	B	A	A	B	B	B
4	H	R	R	B	H	H	H	H	A	A	D	H	H	H	H	H	H	B
5	H	R	R	B	H	H	H	H	H	A	D	H	H	H	H	H	H	B
6	A	R	R	B	R	A	B	H	H	H	B	D	A	B	B	D	C	H
7	A	A	B	H	R	A	B	H	H	H	B	D	A	B	B	D	D	H
8	B	A	B	H	R	B	A	R	R	B	H	A	D	D	D	A	D	D
9	B	A	B	H	R	B	A	R	R	B	H	A	D	D	D	A	D	D

The names of the observers to whom the initials belong will be found, § 2.

79. The absolute westerly declination is to be obtained from the observations by adding 24° 20′, or by deleting the unit in the hundreds place, and prefixing 25°.

80. *All* the readings of the bifilar and balance magnetometer, are corrected for temperature by the quantities given in Tables 11 and 18; 300 scale divisions being added to all the bifilar readings.

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* Mr WALLACE, of the Edinburgh Observatory.

500 micrometer divisions are added to the readings of the balance magnetometer in September 1841; 400 in October and November 1841; and 700 in all the other months.

81. In the term-day and extra observations of the bifilar and balance magnetometers, the corrections for temperature are interpolated for the observations in the periods between the thermometer readings.

82. The meteorological observations are made in the period from 2^m before till 7^m after the minute of declination observation.

83. In forming the abstract of the observations, the sums were taken, accidentally, according to the astronomical reckoning.

84. With the exception of Tables VIII. and XV., the other tables of abstracts for the bifilar and balance magnetometer are corrected by the quantities given. (No. 51.)

85. Owing to the fewness of the daily observations, the results are to some extent limited. The remarks on the tables have been confined to pointing out their more prominent features.

86. When the observations for 1844 and 1845, which are made hourly, are reduced, factors may be obtained generally for the approximate conversion of the monthly means of four observations to the monthly means from the twenty-four observations.

87. It should be remembered, in considering the tables of abstracts, that the means for July 1841, are from only 11 days, and for January 1842 from 15 days.

88. On account of adjustments at different periods, several months of the observations of the Force Magnetometers are not comparable with each other. These circumstances are given in the preceding pages; and in the tables of abstracts, the means which are not comparable with each other are separated by lines.

89. All the computations have been made by myself, or with the aid of my present assistants, Messrs **WELSH** and **HOGG**, and each computation has been performed twice by the same or by different individuals.

JOHN A. BROUN.

DAILY OBSERVATIONS

OF

MAGNETOMETERS.

1841 AND 1842.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
July 11	20	0	123·82	469·3	52·5	756·0	52·5	Aug. 4	20	0	129·58	517·3	57·1	766·0	57·6
	23	0	129·67	458·9	53·6	741·0	53·7		23	0	136·63	504·3	57·4	757·7	57·5
July 12	2	0	131·17	483·8	55·7	758·9	55·5	Aug. 5	2	0	142·91	522·4	58·8	748·6	58·2
	5	0	127·48	508·5	61·0	744·3	59·1		5	0	138·93	541·8	60·9	774·1	60·1
	20	0	121·80	466·7	54·1	772·3	54·6		20	0	138·40	510·9	59·2	695·6	59·0
	23	0	128·37	465·6	56·4	737·8	56·6		23	0	138·40	513·1	60·0	697·9	59·7
July 13	2	0	135·73	488·7	57·3	758·9	57·2	Aug. 6	2	0	138·82	515·9	61·9	802·4	61·6
	5	0	133·15	495·1	58·6	788·0	58·3		5	0	145·35	567·7	61·4	809·0	61·0
	20	0	123·48	478·5	54·3	763·8	55·4		20	0	132·62	518·8	56·6	743·1	56·7
	23	0	128·05	472·7	57·4	750·7	57·2		23	0	139·73	513·3	59·6	721·3	58·7
July 14	2	0	133·42	480·7	60·1	760·0	59·3	Aug. 7	2	0	141·70	531·8	61·6	708·4	60·2
	5	0	129·69	495·0	61·5	753·8	60·7		5	0	135·05	532·4	63·1	779·1	62·2
	20	0	122·18	464·0	55·5	702·6	55·8	Aug. 8	20	0	127·23	522·8	56·9	754·1	57·2
	23	0	129·75	462·2	56·5	728·0	56·5		23	0	134·15	521·4	59·3	750·0	59·1
July 15	2	0	141·29	483·9	59·0	754·8	58·6	Aug. 9	2	0	141·73	526·5	61·4	720·3	60·7
	5	0	135·50	499·8	61·6	777·4	60·4		5	0	135·57	537·8	63·6	718·6	62·6
	20	0	124·55	474·6	54·7	759·8	54·7		20	0	....	......	......	......	......
	23	0	130·58	468·4	55·4	......	......		23	0	135·82	519·5	57·1	749·7	56·9
July 16	2	0	135·77	483·1	58·5	767·6	58·6	Aug. 10	2	0	140·85	530·1	58·9	736·7	58·7
	5	0	133·95	497·9	63·8	804·0	62·2		5	0	135·15	543·2	60·7	737·9	59·7
	20	0	128·96	474·6	54·8	770·1	55·6		20	0	128·87	522·5	51·9	777·9	52·3
	23	0	133·57	479·7	57·6	778·7	57·7		23	0	135·10	522·6	54·3	762·3	54·1
July 17	2	0	136·75	492·7	61·6	796·4	61·0	Aug. 11	2	0	139·15	534·2	56·5	734·5	56·2
	5	0	133·31	494·1	64·3	836·1	63·3		5	0	135·79	539·5	57·6	748·6	56·8
July 18	20	0	....	......	......	......	......		20	0	126·81	525·3	51·6	659·9	52·1
	23	0	132·98	482·6	62·2	780·2	61·7		23	0	134·77	528·9	54·3	729·7	53·8
July 19	2	0	140·47	494·3	67·6	806·5	65·4	Aug. 12	2	0	139·49	531·5	57·5	722·5	56·6
	5	0	137·47	520·6	69·5	807·6	67·8		5	0	138·35	553·8	58·9	720·8	57·7
	20	0	135·82	477·1	58·4	661·5	59·2		20	0	128·92	525·7	50·2	757·5	50·6
	23	0	135·99	444·0	60·9	728·1	61·1		23	0	134·82	530·5	54·4	729·0	53·8
July 20	2	0	133·11	493·6	63·8	793·4	63·2	Aug. 13	2	0	139·12	537·8	58·5	715·5	57·0
	5	0	135·77	498·2	64·7	799·2	63·9		5	0	134·88	543·2	58·6	732·2	57·5
	20	0	123·77	472·3	58·4	738·6	58·3		20	0	128·10	536·3	55·6	746·7	55·7
	23	0	129·29	460·3	59·3	742·3	59·2		23	0	134·37	530·7	56·4	728·7	56·2
July 21	2	0	136·94	497·1	62·0	749·0	61·9	Aug. 14	2	0	141·09	539·7	57·2	718·2	56·7
	5	0	133·25	519·2	62·9	798·0	62·8		5	0	137·20	547·2	58·1	728·5	57·3
	20	0	129·13	471·3	59·3	720·1	59·7	Aug. 15	20	0	129·27	526·1	55·7	700·2	56·2
	23	0	129·47	466·5	58·6	734·1	59·2		23	0	138·52	524·8	58·2	729·6	58·0
July 22	2	0	133·47	475·8	58·9	747·9	59·6	Aug. 16	2	0	144·43	544·7	63·8	667·6	62·5
	5	0	131·33	487·4	59·9	759·2	60·2		5	0	134·90	543·5	68·1	725·6	66·1
	20	0	....	......	......	......	......		20	0	136·58	523·9	60·6	712·7	60·7
	23	0	129·42	468·4	55·7	725·4	55·8		23	0	142·97	524·9	62·2	707·5	62·1
July 23	2	0	134·62	482·9	56·5	729·8	56·4	Aug. 17	2	0	141·68	547·1	64·9	716·0	64·0
	5	0	132·40	488·0	58·1	765·7	58·3		5	0	135·08	550·8	65·7	739·5	65·1

BIFILAR.	July 11^{d}—July 23^{d}	$k=0{\cdot}0001185$	$q=0{\cdot}000304=2{\cdot}57$	Scale divisions.
„	Aug. 4^{d}—Sept. 7^{d} 5^{h}	$k=0{\cdot}0001522$	$q=0{\cdot}000304=2{\cdot}00$	Scale divisions.
BALANCE.	July 11^{d}—July 23^{d}	$k=0{\cdot}0000127$	$q=0{\cdot}000073=5{\cdot}74$	Micrometer divisions.
„	Aug. 4^{d}—Aug. 28^{d}	$k=0{\cdot}0000143$	$q=0{\cdot}000073=5{\cdot}10$	Micrometer divisions.

July 15^{d} 23^{h}. The Balance reading considerably changed, caused by a spider's thread which was found attached to the magnet. Spider's thread removed. The difference of the readings between the two Micrometers of the Balance has increased about 6 Mic. Div.

July 20^{d}. A fibre of the suspension thread of the Declinometer found broken; removed carefully.

July 22^{d} 8^{h}. The object lens of the right hand Micrometer of the Balance found loose; when screwed tight the difference between the readings of the two Micrometers reverted to its value previously to July 15^{d}.

July 23^{d}—Aug 4^{d}. A carefully prepared thread placed in the Declinometer, from which the torsion was completely removed after hanging a few days with the brass bar attached. The Bifilar and Balance Magnetometers readjusted, the magnets being placed with their poles in directions opposite to that which they previously occupied. See *Introduction*.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Aug. 17	20	0	131·30	528·7	53·6	781·5	54·7
	23	0	137·21	528·0	56·4	724·4	56·3
Aug. 18	2	0	141·73	551·5	60·8	694·2	59·7
	5	0	137·75	553·3	65·3	712·1	63·1
	20	0	133·73	534·8	57·4	750·4	57·5
	23	0	135·57	530·7	59·6	731·8	59·2
Aug. 19	2	0	………	……	……	……	……
	5	0	138·05	552·7	67·8	695·3	65·7
	20	0	127·97	545·0	62·7	705·6	62·7
	23	0	135·92	541·5	65·5	683·2	64·7
Aug. 20	2	0	142·05	557·1	69·1	634·5	68·1
	5	0	138·23	552·8	70·2	650·7	69·5
	20	0	130·87	540·2	62·0	714·3	62·7
	23	0	137·00	533·8	60·4	691·5	61·0
Aug. 21	2	0	145·92	538·3	60·4	703·8	60·7
	5	0	139·76	549·7	59·9	722·3	60·1
Aug. 22	20	0	138·75	523·3	56·8	683·2	57·3
	23	0	135·15	536·7	58·0	675·2	58·2
Aug. 23	2	0	143·25	541·5	61·6	676·3	61·7
	5	0	143·57	543·2	63·7	718·5	62·7
	20	0	150·30	504·5	53·6	671·6	54·1
	23	0	137·21	522·0	54·5	709·6	54·9
Aug. 24	2	0	140·56	542·5	57·1	714·1	56·9
	5	0	136·90	550·5	60·1	695·3	59·7
	20	0	132·27	545·8	56·6	718·8	56·7
	23	0	136·00	544·6	59·3	700·5	58·7
Aug. 25	2	0	141·47	557·9	63·6	656·8	62·2
	5	0	136·88	555·3	65·7	669·3	64·2
	20	0	130·49	546·4	61·5	691·1	61·2
	23	0	137·57	543·1	64·1	658·4	63·3
Aug. 26	2	0	145·39	552·8	65·5	663·6	64·6
	5	0	143·11	570·2	66·5	710·3	65·8
	20	0	144·62	535·8	62·1	605·6	62·2
	23	0	138·93	548·3	62·3	676·0	62·2
Aug. 27	2	0	152·00	551·2	65·4	696·6	64·7
	5	0	139·65	559·3	67·5	734·5	66·3
	20	0	137·18	545·4	63·0	672·4	63·8
	23	0	141·78	523·9	64·5	718·3	65·1
Aug. 28	2	0	147·63	554·5	67·6	712·3	67·4
	5	0	139·72	563·4	69·8	690·6	67·8
Aug. 31	20	0	143·35	508·6	50·1	……	……
	23	0	143·24	535·5	53·1	……	……
Sept. 1	2	0	142·08	564·7	57·6	……	……
	5	0	134·35	559·1	58·8	……	……
Sept. 1	20	0	133·57	543·9	54·6	……	……
	23	0	139·35	541·1	57·1	……	……
Sept. 2	2	0	141·65	559·6	60·6	……	……
	5	0	136·00	557·9	61·7	……	……
	20	0	132·00	542·7	54·2	……	……
	23	0	………	……	……	……	……
Sept. 3	2	0	………	……	……	……	……
	5	0	………	……	……	……	……
	20	0	129·95	548·9	52·7	……	……
	23	0	135·35	534·5	52·3	……	……
Sept. 4	2	0	142·50	548·5	51·4	……	……
	5	0	135·48	551·6	50·8	……	……
Sept. 5	20	0	124·23	541·8	47·3	713·7	47·9
	23	0	126·52	539·7	48·6	709·3	48·6
Sept. 6	2	0	133·37	550·1	52·6	699·0	51·6
	5	0	130·49	560·7	55·6	698·5	54·1
	20	0	123·35	544·5	47·1	711·0	47·6
	23	0	128·40	545·0	49·4	699·9	49·0
Sept. 7	2	0	133·07	551·0	52·5	688·0	51·3
	5	0	131·27	565·0	54·6	698·0	53·1
	20	0	124·79	506·2	51·1	695·8	51·6
	23	0	128·69	504·6	52·3	699·8	52·1
Sept. 8	2	0	133·53	514·3	53·6	683·0	53·1
	5	0	129·10	517·5	54·5	693·6	53·7
	20	0	122·64	503·6	46·9	721·8	47·4
	23	0	127·14	499·9	48·7	722·4	49·0
Sept. 9	2	0	134·17	511·9	52·9	695·7	51·9
	5	0	130·23	520·1	55·7	688·9	54·3
	20	0	123·77	516·6	58·6	681·3	58·0
	23	0	128·17	514·7	60·1	672·9	59·5
Sept. 10	2	0	134·59	522·4	62·1	655·8	61·2
	5	0	131·03	529·6	62·6	660·4	62·1
	20	0	127·07	514·9	59·0	656·8	58·9
	23	0	128·27	517·7	59·9	665·8	59·5
Sept. 11	2	0	134·55	525·1	62·1	657·3	61·4
	5	0	………	……	……	……	……
Sept. 12	20	0	127·27	531·3	61·6	590·0	62·2
	23	0	144·15	509·5	63·1	644·2	63·2
Sept. 13	2	0	139·90	541·0	69·3	655·9	68·4
	5	0	129·49	539·3	73·6	727·8	71·6
Sept. 14	20	0	131·45	520·4	61·8	675·8	62·0
	23	0	135·28	519·5	64·0	674·8	63·1
Sept. 15	2	0	135·43	529·5	68·3	652·8	67·0
	5	0	132·13	532·6	69·5	657·6	68·1

BIFILAR. Aug. 4^{d} —Sept. 7^{d} 5^{h} $k=0{\cdot}0001522$ $q=0{\cdot}000304=2{\cdot}00$ Scale divisions.
„ Sept. 7^{d} 20^{h}—Sept. 30^{d} $k=0{\cdot}0001464$ $q=0{\cdot}000304=2{\cdot}08$ Scale divisions.
BALANCE. Aug. 4^{d} —Aug. 28^{d} $k=0{\cdot}0000143$ $q=0{\cdot}000073=5{\cdot}10$ Micrometer divisions.
„ Sept. 5^{d} —Sept. 30^{d} $k=0{\cdot}0000127$ $q=0{\cdot}000073=5{\cdot}74$ Micrometer divisions.

Aug. 20^{d} 22^{h}. Extra observations made during a thunder storm.

Aug. 30^{d}. Mr Simms adjusted the agate planes of the Balance Magnetometer, making them parallel to each other; he also inserted spider's threads in lieu of the silver wire for the bisection crosses, and adjusted the Micrometers.

Sept. 3^{d}. Remaining observations for the day not made, on account of alterations being made in the Balance Magnetometer.

Sept. 7^{d} 7^{h}. Torsion circle of Bifilar Magnetometer moved from 114° 50′ to 114° 0′, in order to bring the readings nearer the middle of the scale.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Sept. 15	20	0	132·88	524·5	61·0	660·0	61·2
	23	0	135·13	518·6	62·5	660·9	62·4
Sept. 16	2	0	139·40	527·8	64·2	655·3	63·3
	5	0	134·25	531·9	66·5	670·2	65·3
	20	0	133·17	518·9	55·1	644·8	55·7
	23	0	133·95	517·5	56·8	677·7	56·3
Sept. 17	2	0	138·48	533·8	63·4	653·7	61·4
	5	0	133·77	541·7	66·5	666·1	64·5
	20	0	128·89	522·3	54·6	677·4	55·1
	23	0	133·90	510·6	54·8	679·4	55·2
Sept. 18	2	0	140·10	528·4	56·9	666·7	56·2
	5	0	135·82	526·7	58·2	692·3	57·2
	20	0	………	……	……	……	……
	23	0	133·22	510·3	56·6	665·9	56·2
Sept. 19	2	0	140·93	530·3	61·6	645·8	59·9
	5	0	140·36	548·7	65·8	709·1	64·1
	20	0	129·47	526·9	60·2	675·6	59·9
	23	0	135·20	516·6	60·5	670·1	60·2
Sept. 20	2	0	142·27	526·7	60·4	665·7	60·2
	5	0	136·52	536·2	60·6	693·4	60·2
	20	0	131·88	522·0	53·0	704·7	52·9
	23	0	135·19	513·5	54·4	683·7	53·8
Sept. 21	2	0	140·40	525·0	58·8	665·9	57·4
	5	0	136·83	529·7	59·6	675·7	58·3
	20	0	132·11	522·0	52·4	687·8	52·1
	23	0	135·68	517·3	54·5	671·7	53·8
Sept. 22	2	0	140·13	526·7	56·0	648·4	55·3
	5	0	135·20	536·0	56·4	683·1	55·7
	20	0	132·02	532·9	62·4	685·3	62·3
	23	0	137·28	515·0	60·6	646·2	60·7
Sept. 23	2	0	141·29	529·0	60·8	650·2	61·7
	5	0	137·88	540·5	63·5	649·9	63·0
	20	0	………	……	……	……	……
	23	0	136·20	525·1	58·0	647·8	57·7
Sept. 24	2	0	140·75	531·1	58·2	642·1	57·8
	5	0	144·42	546·1	60·7	665·1	59·6
	20	0	133·77	516·8	55·4	575·5	55·4
	23	0	144·93	497·6	58·0	625·6	57·3
Sept. 25	2	0	153·14	664·3	62·0	916·3	60·2
	5	0	130·45	860·2	65·0	909·7	63·2
Sept. 26	20	0	142·08	508·7	51·6	645·5	51·6
	23	0	138·40	495·6	54·0	806·8	5·13
Sept. 27	2	0	139·92	526·0	57·7	819·6	56·0
	5	0	132·20	547·1	59·2	867·6	57·8
Sept. 27	20	0	135·52	528·8	55·5	617·3	55·2
	23	0	133·85	523·0	60·9	633·0	59·2
Sept. 28	2	0	138·55	532·2	64·4	631·6	62·6
	5	0	133·04	537·7	63·7	659·0	62·5
	20	0	136·32	532·4	56·0	575·5	56·2
	23	0	135·30	506·5	56·4	680·4	56·5
Sept. 29	2	0	137·47	536·3	61·1	635·3	59·7
	5	0	133·85	538·9	63·1	754·8	61·6
	20	0	127·65	527·8	56·1	602·5	56·2
	23	0	132·95	524·9	57·1	639·2	56·7
Sept. 30	2	0	137·48	540·3	63·2	627·0	61·7
	5	0	128·80	545·4	63·7	681·2	62·2
Oct. 6	20	0	128·25	505·2	50·6	653·7	50·9
	23	0	132·50	504·2	51·1	642·3	50·9
Oct. 7	2	0	135·46	524·6	56·1	644·6	54·4
	5	0	136·83	531·2	56·6	666·6	56·5
	20	0	127·67	516·9	51·5	625·2	51·5
	23	0	133·40	511·8	53·6	650·3	52·9
Oct. 8	2	0	137·25	517·5	56·4	643·5	56·2
	5	0	121·70	555·5	55·6	735·3	55·4
	20	0	127·57	513·5	49·4	661·2	49·5
	23	0	127·28	515·4	52·1	666·7	50·7
Oct. 9	2	0	131·51	533·4	55·5	649·3	54·0
	5	0	128·93	549·7	56·5	706·7	55·7
Oct. 10	20	0	131·24	524·1	52·6	665·6	52·1
	23	0	128·34	533·1	55·9	662·5	54·8
Oct. 11	2	0	131·68	536·0	58·5	638·2	57·2
	5	0	127·81	544·7	59·2	638·7	58·0
	20	0	124·62	504·9	48·6	651·1	48·9
	23	0	125·15	520·5	47·6	661·0	48·5
Oct. 12	2	0	130·58	541·4	52·9	665·9	51·8
	5	0	125·81	552·2	56·8	662·6	55·2
	20	0	121·67	537·0	47·6	656·3	48·1
	23	0	125·13	533·5	50·3	654·7	49·4
Oct. 13	2	0	129·95	542·3	51·8	647·6	51·0
	5	0	125·39	542·4	50·5	662·4	50·1
	20	0	125·70	537·4	49·8	641·1	49·5
	23	0	125·03	542·7	54·4	625·9	53·5
Oct. 14	2	0	129·85	541·8	56·8	630·8	55·7
	5	0	125·40	549·1	57·3	640·7	56·5
	20	0	126·74	534·0	51·4	607·8	51·4
	23	0	130·56	535·9	53·9	645·7	54·0
Oct. 15	2	0	131·20	536·8	56·0	646·3	56·0
	5	0	128·82	558·8	55·4	656·8	55·7

BIFILAR.	Sept. 7^d 20^h—Sept. 30^d	$k=0{\cdot}0001464$	$q=0{\cdot}000304=2{\cdot}08$ Scale divisions.
”	Oct. 6^d —Oct. 19^d 20^h	$k=0{\cdot}0001303$	$q=0{\cdot}000304=2{\cdot}34$ Scale divisions.
BALANCE.	Sept. 5^d —Sept. 30^d	$k=0{\cdot}0000127$	$q=0{\cdot}000073=5{\cdot}74$ Micrometer divisions.
”	Oct. 6^d —Nov. 30^d	$k=0{\cdot}0000118$	$q=0{\cdot}000073=6{\cdot}20$ Micrometer divisions.

Sept. 18^d—19^d. Sunday.

Sept. 25^d 2^h. Bifilar reading approximate. Scale out of the field.

Sept. 25^d 4^h. Observations made during an extraordinary disturbance, at which time the torsion circle of the Bifilar was frequently turned, but left ultimately at its usual position.

Oct 2^d. Balance magnet reversed, for the purpose of determining the deviation of the bisection crosses from the magnetic axis.

Oct. 1^d—6^d. Wires of Bifilar Magnetometer found to have a twist. Wires removed, and, after several trials, new ones inserted which were free of twist. Adjustment completed. Torsion circle left reading 290° 0′.

Göttingen Mean Time of Declination Observation.				DECLINATION.	BIFILAR.		BALANCE.	
					Corrected.	Thermometer.	Corrected.	Thermometer.
	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Oct.	15	20	0	123·99	538·8	46·1	639·5	46·1
		23	0	128·90	532·3	47·3	653·1	47·1
Oct.	16	2	0	131·22	542·4	50·9	652·5	49·8
		5	0	130·23	544·2	50·1	701·3	49·8
Oct.	17	20	0	129·10	536·0	46·4	632·4	45·4
		23	0	129·29	537·5	46·9	639·7	46·6
Oct.	18	2	0	134·85	546·8	50·6	639·4	49·8
		5	0	132·47	552·2	51·0	670·6	50·1
		20	0	125·19	541·6	40·0	654·1	40·8
		23	0	129·30	535·8	41·7	646·9	41·3
Oct.	19	2	0	133·07	551·9	50·6	634·6	48·5
		5	0	129·05	552·6	51·6	659·9	50·1
		20	0	128·40	539·8	46·6	642·6	46·6
		23	0	129·69	502·2	51·1	639·2	49·2
Oct.	20	2	0	130·95	505·6	54·0	629·5	52·6
		5	0	131·17	506·5	52·6	669·8	52·1
		20	0	125·94	498·7	50·1	508·1	50·6
		23	0	132·44	490·6	49·4	612·5	49·1
Oct.	21	2	0	129·15	498·7	52·6	755·3	52·1
		5	0	130·80	514·1	54·3	680·2	53·4
		20	0	………	……	……	……	……
		23	0	129·29	486·7	41·7	660·5	42·1
Oct.	22	2	0	132·67	501·3	45·1	653·1	44·5
		5	0	128·60	503·2	45·2	652·8	45·1
		20	0	130·96	501·2	43·2	658·6	43·2
		23	0	131·58	496·8	47·6	660·0	45·6
Oct.	23	2	0	134·77	504·9	49·8	647·0	48·1
		5	0	129·72	507·4	49·6	650·1	48·6
Oct.	24	20	0	145·59	491·3	44·6	544·4	44·5
		23	0	139·33	495·2	45·4	652·5	45·0
Oct.	25	2	0	144·60	648·9	48·5	1144·4	47·6
		5	0	127·14	554·9	48·4	1062·9	47·6
		20	0	139·72	483·5	41·7	611·3	42·0
		23	0	140·13	493·4	42·3	715·8	42·1
Oct.	26	2	0	141·70	497·0	46·4	727·3	45·4
		5	0	123·39	480·5	46·2	905·5	45·6
		20	0	138·47	495·1	40·9	667·5	41·0
		23	0	139·33	487·0	43·5	704·8	42·5
Oct.	27	2	0	142·04	507·9	51·1	686·5	48·5
		5	0	137·81	500·0	49·9	689·9	48·8
		20	0	134·59	493·4	43·1	562·4	43·0
		23	0	136·65	497·5	45·4	650·0	44·9
Oct.	28	2	0	142·88	498·4	50·9	672·5	49·6
		5	0	136·45	513·0	50·4	704·8	50·1
		20	0	134·55	495·4	39·7	651·4	40·5
		23	0	137·57	497·4	44·2	668·0	43·7
Oct.	29	2	0	138·52	504·1	47·9	654·8	46·8
		5	0	135·79	512·4	49·1	639·7	47·8
Oct.	29	20	0	134·48	496·4	44·3	650·2	44·5
		23	0	137·08	499·8	47·6	655·4	46·5
Oct.	30	2	0	139·75	506·8	50·5	651·1	49·2
		5	0	137·08	506·6	50·0	641·6	49·1
Oct.	31	20	0	134·35	502·8	45·1	639·6	45·1
		23	0	135·75	499·9	45·8	647·5	45·6
Nov.	1	2	0	138·23	507·3	50·6	637·7	49·1
		5	0	136·34	512·5	49·5	640·5	48·9
		20	0	138·34	500·4	40·3	631·3	41·0
		23	0	135·65	494·2	40·2	639·9	40·9
Nov.	2	2	0	138·87	505·2	44·1	644·3	43·5
		5	0	136·65	511·3	48·6	646·2	46·6
		20	0	134·43	506·5	40·9	632·8	41·3
		23	0	136·52	501·2	44·7	626·6	44·1
Nov.	3	2	0	138·03	507·8	47·3	630·5	45·8
		5	0	135·68	515·0	47·0	635·3	46·1
		20	0	128·17	512·4	39·7	502·1	40·4
		23	0	139·47	482·6	41·5	625·9	40·9
Nov.	4	2	0	147·03	519·8	46·2	709·6	44·6
		5	0	139·53	503·5	47·6	734·9	46·1
		20	0	139·35	499·5	38·3	608·6	39·0
		23	0	146·30	491·2	40·6	683·9	40·0
Nov.	5	2	0	149·77	506·3	45·4	687·2	43·6
		5	0	134·06	510·2	46·7	718·6	45·2
Nov.	7	20	0	134·86	509·8	50·4	612·4	49·6
		23	0	137·50	497·1	53·4	629·8	51·8
Nov.	8	2	0	137·34	515·4	57·3	608·9	55·7
		5	0	135·52	508·9	56·0	637·5	55·2
		20	0	136·45	524·2	51·4	597·7	49·9
		23	0	133·45	507·3	50·6	622·4	50·1
Nov.	9	2	0	136·37	512·2	50·6	626·7	50·4
		5	0	134·46	511·9	50·4	660·7	50·1
		20	0	128·55	510·2	49·7	603·4	49·1
		23	0	132·31	508·5	51·0	629·2	49·9
Nov.	10	2	0	135·55	506·8	51·6	627·5	51·1
		5	0	133·38	508·9	51·3	627·7	50·8
		20	0	129·32	509·5	45·9	608·1	46·2
		23	0	130·07	511·8	46·6	609·3	46·4
Nov.	11	2	0	137·54	504·6	47·6	629·2	47·1
		5	0	133·04	501·8	48·4	669·2	47·6
		20	0	133·28	510·2	40·4	626·4	40·6
		23	0	131·51	500·7	42·4	645·2	41·6
Nov.	12	2	0	134·73	504·0	43·3	655·3	42·7
		5	0	131·27	511·6	43·4	668·9	43·0
		20	0	131·50	500·8	35·8	645·1	36·5
		23	0	133·73	503·1	37·1	606·2	37·2
Nov.	13	2	0	133·04	508·1	43·2	653·6	41·5
		5	0	131·00	505·9	44·1	649·9	43·0

BIFILAR. Oct. 6ᵈ —Oct. 19ᵈ 20ʰ $k=0{\cdot}0001303$ $q=0{\cdot}000304=2{\cdot}34$ Scale divisions.
„ Oct. 19ᵈ 23ʰ—Dec. 31ᵈ $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.
BALANCE. Oct. 6ᵈ —Nov. 30ᵈ $k=0{\cdot}0000118$ $q=0{\cdot}000073=6{\cdot}20$ Micrometer divisions.

Oct. 19ᵈ 21ʰ. The readings of the Bifilar having altered, so that the middle of the scale was no longer the mean position, the arm of the torsion circle was moved 50′. Torsion circle left reading 289° 10′.

Göttingen Mean Time of Declination Observation.			Declination.	Bifilar.		Balance.		Göttingen Mean Time of Declination Observation.			Declination.	Bifilar.		Balance.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Nov. 14	20	0	132·64	500·2	31·9	651·0	32·1	Nov. 22	20	0	130·22	507·4	36·8	632·1	37·0
	23	0	131·24	500·2	32·6	656·9	32·5		23	0	126·23	499·3	38·1	638·5	37·7
Nov. 15	2	0	132·30	505·6	35·6	663·7	34·6	Nov. 23	2	0	131·20	496·7	39·7	650·0	39·1
	5	0	130·15	506·9	35·8	660·2	35·0		5	0	127·57	503·0	40·5	662·0	40·0
	20	0	129·36	498·5	30·3	656·8	30·6		20	0	127·48	505·2	38·2	635·1	38·3
	23	0	129·67	504·5	33·5	660·7	32·6		23	0	129·18	503·6	40·7	636·7	39·8
Nov. 16	2	0	130·90	513·4	42·4	637·2	39·9	Nov. 24	2	0	132·10	498·6	44·7	652·2	43·7
	5	0	129·07	513·6	43·4	633·1	41·5		5	0	129·00	505·1	44·5	650·0	43·5
	20	0	128·38	502·8	30·8	643·6	31·1		20	0	125·58	505·2	36·8	627·1	37·2
	23	0	131·67	500·6	31·4	641·8	31·2		23	0	128·15	503·6	36·8	617·0	36·7
Nov. 17	2	0	134·59	507·0	41·0	646·9	38·7	Nov. 25	2	0	130·10	517·1	45·4	615·2	43·3
	5	0	132·33	514·4	46·2	634·6	44·0		5	0	127·68	515·0	48·5	611·0	46·8
	20	0	129·07	493·1	27·9	650·3	28·5		20	0	126·92	499·9	35·0	639·9	35·7
	23	0	132·22	498·1	27·8	647·9	27·9		23	0	128·05	502·1	35·5	638·8	35·5
Nov. 18	2	0	133·00	520·6	36·3	646·2	34·6	Nov. 26	2	0	132·05	514·9	42·5	632·1	41·0
	5	0	132·84	518·7	37·3	655·8	35·7		5	0	128·63	517·7	48·6	626·9	45·1
	20	0	148·57	440·7	31·9	580·8	32·1		20	0	129·10	510·5	46·6	634·2	47·2
	23	0	139·16	499·3	34·1	706·8	33·1		23	0	130·83	507·7	46·6	610·3	46·3
Nov. 19	2	0	………	……	……	……	……	Nov. 27	2	0	131·90	512·3	49·8	606·0	48·8
	5	0	134·12	509·6	44·2	727·1	42·0		5	0	131·82	511·8	50·4	625·2	49·1
	20	0	132·11	491·2	32·7	607·8	33·3	Nov. 28	20	0	129·03	505·7	39·8	633·2	40·2
	23	0	135·28	468·1	32·9	704·6	32·9		23	0	129·49	505·1	41·2	624·7	40·8
Nov. 20	2	0	136·40	502·8	36·9	752·5	36·0	Nov. 29	2	0	132·30	516·1	48·0	613·6	46·4
	5	0	129·00	508·6	39·7	725·0	38·3		5	0	129·98	516·7	50·6	612·2	49·1
Nov. 21	20	0	126·78	503·9	35·3	659·4	35·5		20	0	129·63	511·8	45·3	604·5	45·3
	23	0	129·95	494·8	36·4	658·0	36·0		23	0	………	……	……	……	……
Nov. 22	2	0	131·47	507·1	38·7	650·4	38·0	Nov. 30	2	0	128·80	516·2	49·1	609·0	47·7
	5	0	129·30	503·2	40·7	678·5	39·5		5	0	127·83	516·0	49·9	606·7	48·8

1842.

Jan. 12	20	0	127·32	510·5	40·0	922·1	41·5	Jan. 14	20	0	127·78	516·7	40·1	944·3	41·0
	23	0	130·40	507·4	39·2	950·0	40·5		23	0	128·83	517·5	43·0	943·0	44·0
Jan. 13	2	0	130·27	519·4	44·6	935·4	45·9	Jan. 15	2	0	132·15	526·9	48·1	910·3	48·9
	5	0	130·52	518·9	46·0	941·2	47·6		5	0	130·13	522·2	47·7	924·3	48·5
	20	0	127·77	509·0	35·1	952·5	35·6	Jan. 16	20	0	128·25	513·4	34·5	964·0	34·3
	23	0	130·09	510·7	35·6	967·2	36·0		23	0	129·40	508·0	37·3	981·1	37·1
Jan. 14	2	0	130·58	525·5	44·6	939·8	44·6	Jan. 17	2	0	131·95	521·8	45·2	937·5	44·6
	5	0	128·98	523·0	45·6	938·9	45·8		5	0	129·72	521·9	48·6	927·9	47·9

Bifilar. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.
Balance. Oct. 6d —Nov. 30d $k=0{\cdot}0000118$ $q=0{\cdot}000073=6{\cdot}20$ Micrometer divisions.
„ Jan. 12d —Jan. 22d $k=0{\cdot}0000127$ $q=0{\cdot}000073=5.75$ Micrometer divisions.

Dec. 4d. The declination magnet found to have untwisted the suspension roller, to have sunk down and rested on the copper ring, which had severed some of the fibres of the suspension thread. Thread removed, and a new one prepared.

Dec. 6d. Fibres of the new thread found unequally stretched.

Dec. 8d. A satisfactory thread obtained, which was attached to the suspension roller, and the torsion removed.

Dec. 20d. On Mr Russell's return from Edinburgh he found the thread so much stretched as to bring the stirrup in contact with the copper ring; it was therefore wound up a little, and the torsion removed, preparatory to the term-day observations.

Dec. 23d 0h. (Term day.) Declination magnet again found in contact with the copper ring, from the stretching of the thread. Magnet wound up.

Dec. 28d. The short scale removed from the declination magnet, and a long one attached. (Torsion removed ?)

Jan. 1d *et seq.* Observations made to determine the temperature correction for the Balance magnet. Instrument readjusted.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
h.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Jan. 17	20	0	128·34	523·0	37·3	939·9	38·8	Jan. 31	20	0	128·72	525·4	43·7	906·4	44·3
	23	0	127·03	515·9	39·8	959·3	41·7		23	0	125·79	520·2	44·5	920·8	45·0
Jan. 18	2	0	128·14	516·3	43·9	946·9	44·5	Feb. 1	2	0	129·70	520·2	53·6	896·7	53·8
	5	0	127·60	510·0	46·2	993·7	46·6		5	0	125·97	535·5	52·1	982·6	52·3
	20	0	127·58	513·4	39·2	947·1	39·8		20	0	123·40	520·6	49·9	908·7	50·6
	23	0	129·30	512·7	43·2	967·4	43·2		23	0	127·25	509·0	50·6	910·8	51·1
Jan. 19	2	0	....	527·4	52·7	946·6	52·6	Feb. 2	2	0	130·82	528·2	54·6	930·7	54·9
	5	0	....	526·0	52·1	948·0	52·2		5	0	130·40	515·1	56·1	923·5	56·7
	20	0	....	522·3	57·8	940·7	59·4		20	0	123·95	510·0	42·4	921·9	42·5
	23	0	....	511·9	53·5	955·6	55·3		23	0	126·90	513·9	42·7	938·9	43·8
Jan. 20	2	0	....	524·9	58·8	947·4	60·9	Feb. 3	2	0	131·43	521·1	49·2	929·5	49·1
	5	0	....	525·5	59·6	955·5	61·2		5	0	125·42	526·7	53·9	905·1	53·2
Jan. 21	20	0	....	517·6	46·9	973·8	49·8		20	0	124·43	520·1	48·5	946·0	49·4
	23	0	....	504·4	44·3	971·2	45·4		23	0	125·97	517·2	48·6	919·7	49·6
Jan. 22	2	0	....	517·2	46·6	967·7	49·0	Feb. 4	2	0	132·67	524·2	51·6	914·5	52·0
	5	0	....	522·4	48·8	963·9	51·1		5	0	130·83	526·9	53·4	911·9	54·1
Jan. 23	20	0	....	......	......	......	......		20	0	125·35	518·6	47·1	920·7	48·1
	23	0	....	508·8	33·9	978·2	34·5		23	0	127·03	512·2	46·3	945·9	47·9
Jan. 24	2	0	....	525·4	44·2	940·4	44·1	Feb. 5	2	0	131·85	518·2	50·9	913·9	51·1
	5	0	....	523·4	48·3	958·9	48·1		5	0	128·43	523·0	51·6	912·0	52·1
	20	0	....	508·7	38·5	941·1	39·8	Feb. 6	20	0	130·90	504·7	31·9	906·6	32·1
	23	0	....	513·4	41·6	983·5	41·4		23	0	128·52	505·9	34·8	945·9	35·3
Jan. 25	2	0	....	530·5	49·9	940·1	50·1	Feb. 7	2	0	139·60	507·8	42·7	939·3	42·5
	5	0	....	522·0	51·0	948·8	50·8		5	0	135·42	530·9	49·0	931·4	48·2
	20	0	....	514·5	42·7	948·7	44·3		20	0	126·62	515·3	43·9	921·6	45·1
	23	0	....	512·6	44·6	970·4	44·6		23	0	132·45	514·6	45·6	925·3	45·8
Jan. 26	2	0	....	513·8	43·8	967·4	45·4	Feb. 8	2	0	134·08	520·4	49·4	907·8	49·1
	5	0	....	519·7	45·6	957·1	47·1		5	0	132·45	525·0	53·8	900·8	53·6
	20	0	....	518·1	41·7	964·5	42·5		20	0	132·00	519·1	46·6	920·9	48·1
	23	0	....	515·4	43·3	970·5	44·1		23	0	130·93	512·0	45·1	922·9	46·5
Jan. 27	2	0	....	525·9	48·4	935·0	48·4	Feb. 9	2	0	136·00	523·5	48·6	924·2	49·6
	5	0	....	529·0	50·5	935·2	50·1		5	0	133·40	524·5	52·6	913·4	53·1
	20	0	125·30	515·4	44·6	948·0	46·0		20	0	131·49	522·2	48·3	914·0	48·6
	23	0	126·00	519·6	45·6	948·2	45·6		23	0	133·44	519·3	49·1	914·2	49·6
Jan. 28	2	0	127·83	529·2	49·1	933·1	49·1	Feb. 10	2	0	137·41	528·2	51·5	909·6	51·8
	5	0	127·70	529·7	50 6	931·9	50·4		5	0	134·35	528·4	52·6	916·9	52·6
	20	0	130·75	521·2	44·6	926·5	45·8		20	0	132·10	522·2	50·6	891·8	51·4
	23	0	129·47	522·7	47·1	929·9	48·5		23	0	131·73	520·2	52·6	899·1	53·5
Jan. 29	2	0	133·31	521·5	50·6	907·6	51·1	Feb. 11	2	0	138·30	521·5	54·1	879·5	54·7
	5	0	130·35	521·4	52·1	916·4	52·6		5	0	137·32	530·7	53·1	904·8	53·2
Jan. 30	20	0	127·83	517·5	38·7	931·2	39·0		20	0	131·65	515·3	59·6	758·6	60·7
	23	0	128·41	511·4	39·7	946·2	39·9		23	0	134·47	511·2	56·1	852·3	57·3
Jan. 31	2	0	131·96	519·0	44·9	921·3	45·9	Feb. 12	2	0	139·70	530·6	56·8	871·0	58·4
	5	0	129·01	527·1	48·1	914·5	47·6		5	0	139·05	530·2	57·0	905·4	58·2

BIFILAR. k=0·0001248 q=0·000304=2·44 Scale divisions.
BALANCE. Jan. 12^d—Jan. 22^d k=0·0000127 q=0·000073=5·75 Micrometer divisions.
„ Jan. 23^d—March 21^d 5^h k=0·0000140 q=0·000073=5·20 Micrometer divisions.

Jan 19^d 2^h. Two fibres of the suspension thread of the Declinometer found broken; the loose fibres removed, but the plane of detorsion had evidently varied considerably.

Jan. 20^d 6^h. Suspension thread of Declinometer broke away fibre by fibre during the term observations.

Jan. 21^d. Subsequent circumstances inclined Mr Russell to believe that the stretching and breaking of the fibres alluded to above must have arisen from the silk being defective at that part of the reel from which the threads were formed.

A new thread prepared. It was allowed to stretch for several days, in consequence of the breaking of the last. The torsion was then removed. Torsion circle reading 280°.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Feb. 13	20	0	132·17	518·3	39·2	920·6	39·0	Feb. 25	20	0	131·30	524·2	53·6	860·7	55·8
	23	0	130·96	510·7	39·2	931·5	39·5		23	0	134·58	515·1	51·4	885·7	53·4
Feb. 14	2	0	137·17	518·7	41·2	924·8	40·8	Feb. 26	2	0	136·30	525·6	54·2	879·5	56·1
	5	0	133·24	526·4	44·5	923·8	44·0		5	0	133·55	532·2	58·3	859·5	59·9
	20	0	130·10	526·8	50·4	889·4	50·6	Feb. 27	20	0	130·73	518·0	38·7	953·2	38·8
	23	0	130·33	521·7	51·0	899·1	51·5		23	0	134·25	513·8	42·7	911·3	43·1
Feb. 15	2	0	134·90	526·0	54·6	885·5	54·7	Feb. 28	2	0	136·92	527·0	50·1	863·6	49·4
	5	0	132·80	533·9	58·8	868·9	59·4		5	0	....	......	......	......	......
	20	0	129·82	519·6	48·6	909·3	50·1	Mar. 1	20	0	....	......	......	......	......
	23	0	131·78	518·0	49·6	906·7	49·9		23	0	....	......	......	......	......
Feb. 16	2	0	135·02	527·9	52·9	887·3	52·6	Mar. 2	2	0	139·10	510·4	41·2	919·6	41·4
	5	0	134·42	531·0	55·6	888·3	55·5		5	0	132·80	520·2	41·2	948·8	41·4
	20	0	129·87	514·3	47·6	896·2	48·6		20	0	128·98	515·8	38·8	903·3	39·0
	23	0	132·33	514·9	48·6	920·8	49·1		23	0	131·92	513·6	40·4	906·6	40·5
Feb. 17	2	0	140·30	514·5	51·4	926·1	51·5	Mar. 3	2	0	136·62	521·1	45·2	890·4	44·6
	5	0	118·15	531·6	52·9	1065·4	53·1		5	0	131·27	531·1	48·1	890·9	48·0
	20	0	130·75	526·8	50·6	905·1	51·1		20	0	131·52	522·1	47·1	880·8	47·1
	23	0	138·49	514·8	50·1	911·5	50·8		23	0	134·79	517·3	48·6	877·1	49·2
Feb. 18	2	0	140·52	533·0	53·9	909·7	54·1	Mar. 4	2	0	134·35	525·6	51·6	862·2	52·1
	5	0	121·33	539·5	55·8	1020·2	55·7		5	0	132·62	531·7	54·4	864·9	54·7
	20	0	133·62	518·9	49·3	910·9	49·9		20	0	128·63	516·8	45·1	892·6	46·2
	23	0	135·73	517·5	49·8	921·6	50·1		23	0	130·60	523·2	47·1	890·9	48·0
Feb. 19	2	0	136·35	514·2	51·6	947·4	51·6	Mar. 5	2	0	134·99	525·4	52·6	866·3	52·4
	5	0	135·57	517·4	52·5	963·7	52·3		5	0	135·70	537·5	52·8	911·5	52·6
Feb. 20	20	0	....	511·2	43·6	907·8	43·5	Mar. 6	20	0	128·77	520·1	42·7	896·9	43·0
	23	0	....	......	......	940·0	44·8		23	0	129·95	514·9	45·8	897·5	46·1
Feb. 21	2	0	....	522·4	48·6	922·0	48·6	Mar. 7	2	0	132·33	528·0	52·0	860·5	51·1
	5	0	....	......	......	......	......		5	0	128·90	530·4	52·1	880·7	52·2
	20	0	....	511·4	38·7	923·0	39·5		20	0	128·10	524·1	49·1	875·8	49·9
	23	0	....	513·3	39·9	951·9	40·6		23	0	....	......	......	......	......
Feb. 22	2	0	....	528·7	46·6	906·8	46·5	Mar. 8	2	0	132·20	528·4	53·0	857·9	52·9
	5	0	....	528·1	51·1	895·0	49·8		5	0	132·30	531·8	53·1	889·3	52·6
	20	0	....	515·9	43·2	937·4	44·0		20	0	124·10	522·2	44·5	893·0	45·1
	23	0	....	516·8	45·1	924·2	45·1		23	0	128·27	514·7	45·1	895·0	46·1
Feb. 23	2	0	....	524·6	49·6	908·0	48·9	Mar. 9	2	0	131·25	525·1	48·1	868·5	48·6
	5	0	....	526·0	49·8	888·0	49·6		5	0	121·23	527·5	50·1	905·2	49·6
	20	0	....	525·2	47·7	873·9	48·9		20	0	123·87	515·3	42·7	893·2	44·0
	23	0	....	518·9	48·1	895·3	49·2		23	0	125·80	512·1	44·5	907·7	45·1
Feb. 24	2	0	....	542·6	52·6	869·3	53·1	Mar. 10	2	0	131·15	527·7	48·9	872·4	48·9
	5	0	....	527·6	55·1	969·7	54·6		5	0	127·63	528·0	49·9	869·4	49·1
	20	0	....	506·7	42·7	972·2	43·5		20	0	124·63	519·4	43·7	898·0	44·6
	23	0	....	510·5	43·7	958·6	44·0		23	0	127·21	513·6	45·6	894·4	45·9
Feb. 25	2	0	....	522·7	45·9	925·4	46·1	Mar. 11	2	0	132·33	521·1	48·6	868·3	49·1
	5	0	....	526·9	48·6	929·5	48·2		5	0	127·80	534·6	52·6	857·6	52·5

BIFILAR. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.
BALANCE. Jan. 23d—March 21d 5h $k=0{\cdot}0000140$ $q=0{\cdot}000073=5{\cdot}20$ Micrometer divisions

Feb. 20d. Torsion suspected in Declinometer thread. Torsion tried, estimated at 10°. Circle turned to 270°. This torsion is in an opposite direction from what was suspected. Left with brass bar suspended.

Feb. 21d. The bar had come to rest 50° or 60° to the W. of north; it was allowed to hang for a day or two, when it was found still in the same position; so that the estimation of Feb. 20d was probably inaccurate.

Feb. 25d Torsion removed. Circle reading 330° 30′. It seemed to Mr Russell that the shifting of the magnet, for the purpose of making the Dip observation, was, in some way, connected with this change of the plane of detorsion.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Mar. 11	20	0	125·47	516·6	45·1	866·0	46·9
	23	0	127·40	514·4	47·1	893·0	47·6
Mar. 12	2	0	132·10	529·5	52·1	861·6	51·6
	5	0	127·85	534·5	53·5	856·3	52·6
Mar. 13	20	0	………	……	……	……	……
	23	0	………	516·9	45·1	873·0	45·1
Mar. 14	2	0	………	532·2	51·0	844·1	50·1
	5	0	………	531·7	52·3	855·2	51·6
	20	0	………	527·6	48·6	856·2	48·6
	23	0	130·98	518·7	52·6	841·3	52·1
Mar. 15	2	0	136·88	531·5	55·4	821·4	54·7
	5	0	131·47	532·9	56·3	836·4	55·7
	20	0	127·75	520·0	50·1	871·3	49·9
	23	0	133·90	518·0	51·1	869·2	50·6
Mar. 16	2	0	141·64	527·0	54·6	828·0	54·9
	5	0	136·12	538·6	55·6	855·9	55·2
	20	0	128·77	514·6	45·4	869·7	46·1
	23	0	133·87	514·1	48·1	893·8	47·6
Mar. 17	2	0	134·58	528·3	54·6	867·3	53·4
	5	0	132·62	528·6	52·6	879·5	52·6
	20	0	128·60	510·4	43·6	887·5	44·2
	23	0	132·27	511·4	44·6	892·6	45·1
Mar. 18	2	0	134·55	524·2	48·1	872·9	48·1
	5	0	131·43	529·4	52·3	864·3	51·8
	20	0	127·05	513·0	43·5	880·1	44·6
	23	0	134·40	510·9	44·1	891·3	45·1
Mar. 19	2	0	140·09	522·2	50·3	878·2	49·9
	5	0	140·83	535·9	51·9	926·2	51·6
Mar. 20	20	0	128·48	510·6	38·5	880·5	39·0
	23	0	132·97	511·4	42·7	892·2	43·0
Mar. 21	2	0	138·47	523·6	47·6	865·2	48·0
	5	0	133·77	531·7	52·1	840·7	51·8
	20	0	128·37	514·2	43·2	888·0	44·5
	23	0	128·67	512·9	43·7	904·0	45·1
Mar. 22	2	0	130·78	521·1	46·6	894·5	47·1
	5	0	128·32	527·4	49·1	892·7	49·4
	20	0	122·65	521·6	40·7	875·7	40·8
	23	0	129·67	518·2	42·2	890·1	42·6
Mar. 23	2	0	136·05	544·9	48·6	857·7	48·4
	5	0	131·72	541·6	55·2	832·8	53·6
	20	0	125·45	527·8	56·7	845·0	58·2
	23	0	130·13	503·8	59·4	866·9	60·5
Mar. 24	2	0	134·30	529·0	60·4	849·0	61·1
	5	0	130·50	534·0	61·9	849·7	62·9
Mar. 24	20	0	125·12	515·9	48·9	859·5	49·9
	23	0	129·75	507·2	51·3	874·9	51·9
Mar. 25	2	0	………	……	……	……	……
	5	0	………	……	……	……	……
	20	0	………	……	……	……	……
	23	0	………	……	……	……	……
Mar. 26	2	0	………	518·9	45·1	873·1	45·6
	5	0	………	533·1	49·4	911·7	48·6
Mar. 27	20	0	133·25	520·1	44·1	869·0	43·5
	23	0	136·42	499·6	46·5	900·0	45·6
Mar. 28	2	0	138·55	528·4	51·1	924·7	49·2
	5	0	131·20	546·3	52·5	960·9	50·9
	20	0	129·50	519·3	44·6	900·4	45·1
	23	0	133·60	510·9	46·1	898·0	46·1
Mar. 29	2	0	139·60	526·4	50·6	889·2	49·1
	5	0	136·52	527·6	51·4	925·3	50·1
	20	0	131·13	511·0	43·7	881·0	43·5
	23	0	133·04	511·3	44·5	898·9	44·1
Mar. 30	2	0	142·80	517·9	47·2	906·5	46·1
	5	0	139·76	538·0	50·4	928·3	48·6
	20	0	127·20	519·6	44·5	905·2	44·6
	23	0	131·42	511·0	45·3	898·4	45·1
Mar. 31	2	0	134·82	530·0	49·1	888·9	47·9
	5	0	131·87	532·1	50·4	903·7	49·1
	20	0	124·39	523·4	43·4	900·6	43·3
	23	0	128·98	516·7	44·2	890·4	43·8
Apr. 1	2	0	137·32	506·2	47·4	890·6	46·1
	5	0	134·20	530·1	48·5	917·7	47·1
	20	0	127·61	514·8	41·5	894·5	41·5
	23	0	130·93	510·0	42·2	895·4	42·0
Apr. 2	2	0	137·20	516·9	43·2	889·7	43·0
	5	0	134·15	530·4	43·2	910·8	42·8
Apr. 3	20	0	127·00	513·3	39·2	911·2	39·5
	23	0	131·52	508·3	41·7	886·4	40·8
Apr. 4	2	0	136·20	529·7	48·4	895·5	46·3
	5	0	135·62	543·5	53·1	915·5	50·1
	20	0	128·38	513·6	42·2	900·2	42·5
	23	0	131·87	511·1	44·2	890·9	44·0
Apr. 5	2	0	138·40	530·0	50·4	879·8	48·5
	5	0	133·10	543·2	55·7	893·3	53·1
	20	0	128·68	509·0	43·2	873·0	43·5
	23	0	134·30	507·9	44·6	882·0	44·3
Apr. 6	2	0	139·89	530·3	51·1	890·5	49·1
	5	0	132·95	539·5	56·6	899·2	53·8

BIFILAR. $k=0·0001248$ $q=0·000304=2·44$ Scale divisions.
BALANCE. Jan. 23^{d} —Mar. 21^{d} 5^{h} $k=0·0000140$ $q=0·000073=5·20$ Micrometer divisions.
„ March 21^{d} 20^{h}—April 16^{d} $k=0·0000118$ $q=0·000073=6.20$ Micrometer divisions.

March 11^{d} 20^{h}, 23^{h}; March 12^{d} 2^{h}, 5^{h}. Observations of the declination at these hours have been corrected for torsion by +3′·30. See note March 14^{d}.

March 14^{d}. Torsion of Declinometer thread examined. Circle moved 54°. Left reading 276°. Mr Russell conceived this torsion to have taken place on removing the magnet in order to make the Dip observation March 11^{d} 6^{h}, when most probably from the thread getting loose for a moment the fibres took a different disposition *inter se*.

March 25^{d} 6^{h}. On removing the detorsion bar from the Declinometer after the Dip observations, the suspension cylinder was accidentally let slip. Brass bar suspended throughout March 26^{d}, and torsion removed. Circle left reading 326°.

March 25^{d} 1^{h}—6^{h}. Declinometer employed in making intensity observation.

March 25^{d} 20^{h}—23^{h}. Observatory being cleaned.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
D.	H.	M.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div	°
Apr. 6	20	0	127·67	517·3	46·6	902·0	46·8	Apr. 20	20	0	133·20	511·8	57·1	859·1	58·7
	23	0	133·77	511·0	46·9	886·7	46·6		23	0	137·70	508·8	58·6	860·8	59·5
Apr. 7	2	0	138·93	524·8	47·9	883·0	47·4	Apr. 21	2	0	140·33	526·6	63·7	845·7	63·1
	5	0	133·51	529·5	49·1	883·0	48·1		5	0	135·75	529·0	66·9	919·2	66·7
	20	0	127·80	517·2	42·7	900·8	43·0		20	0	130·52	513·3	53·6	870·7	54·1
	23	0	133·78	512·5	44·6	888·3	44·2		23	0	134·33	519·9	55·0	887·8	55·1
Apr. 8	2	0	140·47	530·6	51·1	855·8	49·1	Apr. 22	2	0	137·98	531·4	62·0	861·4	60·2
	5	0	135·65	537·0	56·1	878·5	55·2		5	0	137·58	529·2	62·6	867·0	63·1
	20	0	128·77	512·1	42·2	900·9	42·8		20	0	128·48	518·6	49·9	868·8	49·6
	23	0	132·85	507·6	43·7	882·0	43·5		23	0	130·90	511·6	50·6	884·5	50·1
Apr. 9	2	0	140·47	524·9	50·1	869·3	48·1	Apr. 23	2	0	137·80	529·5	54·6	857·7	54·4
	5	0	135·02	532·1	55·6	878·1	52·9		5	0	132·47	536·3	62·6	865·8	60·0
Apr. 10	20	0	134·44	505·9	44·6	787·7	45·3	Apr. 24	20	0	120·85	518·1	50·6	867·4	50·6
	23	0	144·32	493·4	45·6	852·2	45·6		23	0	132·20	511·3	51·3	855·6	50·9
Apr. 11	2	0	142·46	518·2	50·6	912·1	49·1	Apr. 25	2	0	137·63	529·9	57·6	855·7	56·2
	5	0	140·73	537·5	53·1	969·7	51·1		5	0	134·44	541·4	62·2	849·8	59·9
—	20	0	126·43	511·9	42·2	881·9	42·1		20	0	128·01	522·0	49·1	873·7	49·1
	23	0	132·80	514·9	44·5	897·6	44·0		23	0	131·67	517·5	50·8	850·9	50·3
Apr. 12	2	0	140·55	514·6	48·0	935·5	46·6	Apr. 26	2	0	137·77	534·7	57·6	808·3	55·7
	5	0	136·33	536·1	51·0	964·0	48·6		5	0	135·02	541·9	61·6	846·6	59·2
	20	0	131·30	467·0	41·7	880·8	41·8		20	0	126·35	520·0	46·6	865·7	47·1
	23	0	149·15	477·6	42·9	863·6	42·7		23	0	131·62	513·6	49·2	861·1	48·8
Apr. 13	2	0	147·95	536·3	45·6	1041·6	44·6	Apr. 27	2	0	136·62	527·0	55·1	852·4	53·4
	5	0	139·30	530·4	47·9	932·1	46·2		5	0	135·65	540·3	59·3	841·2	56·6
	20	0	128·75	506·1	41·7	903·9	41·5		20	0	128·83	519·3	47·5	867·6	47·8
	23	0	133·13	500·7	42·7	916·6	42·5		23	0	131·69	516·8	48·6	859·6	48·4
Apr. 14	2	0	140·10	512·2	44·6	896·3	44·1	Apr. 28	2	0	137·43	530·7	54·3	829·5	52·5
	5	0	136·62	531·1	46·6	907·4	45·9		5	0	135·63	547·2	59·8	808·7	52·1
	20	0	152·33	454·9	43·7	579·6	43·5		20	0	127·54	518·9	46·3	853·7	46·9
	23	0	142·47	467·2	44·2	885·1	44·0		23	0	132·93	517·7	50·1	854·7	49·4
Apr. 15	2	0	144·34	507·4	45·6	931·4	45·1	Apr. 29	2	0	137·74	533·4	57·1	832·1	55·2
	5	0	136·92	559·8	47·1	1063·2	46·1		5	0	138·82	543·8	61·4	844·9	59·2
	20	20	146·03	499·3	42·7	862·9	43·8		20	0	130·16	518·2	48·1	874·6	48·4
	23	0	136·15	510·5	44·6	892·7	44·0		23	0	134·13	512·1	49·1	852·4	49·0
Apr. 16	2	0	141·05	512·7	47·6	933·4	46·2	Apr. 30	2	0	140·53	526·7	52·8	842·5	51·5
	5	0	137·75	533·4	52·1	932·8	49·2		5	0	138·34	535·4	55·8	858·2	54·1
Apr. 17	20	0	133·53	521·4	43·2	881·6	43·4	May 1	20	0	128·63	530·0	47·9	863·3	48·1
	23	0	134·13	503·5	44·6	892·1	44·2		23	0	134·70	520·4	50·4	844·0	49·8
Apr. 18	2	0	141·80	518·8	52·6	873·7	49·7	May 2	2	0	142·88	532·1	56·3	822·2	54·6
	5	0	133·82	535·9	59·7	924·2	56·7		5	0	137·45	538·9	60·0	840·9	58·1
	20	0	134·50	522·6	49·4	858·0	49·4		20	0	130·60	519·2	47·0	866·6	47·8
	23	0	136·68	507·9	51·3	880·8	50·6		23	30	136·82	519·6	50·5	857·3	49·9
Apr. 19	2	0	144·35	529·0	57·3	874·6	55·3	May 3	2	0	142·06	530·1	56·1	843·9	54·3
	5	0	134·38	540·4	62·6	920·3	60·2		5	0	136·93	534·2	60·0	853·7	58·2
	20	0	129·37	518·0	50·0	879·8	50·1		20	0	131·22	527·0	52·9	858·7	53·4
	23	0	136·05	512·0	52·6	865·5	51·6		23	0	133·35	514·6	53·1	845·0	53·0
Apr. 20	2	0	143·68	523·9	59·4	852·3	57·2	May 4	2	0	138·96	527·3	55·7	836·6	55·0
	5	0	137·63	546·6	64·8	894·9	61·7		5	0	135·65	537·5	58·8	841·1	57·6

BIFILAR. $k=0·0001248$ $q=0·000304=2·44$ Scale divisions.
BALANCE. Mar. 21ᵈ 20ʰ—April 16ᵈ $k=0·0000118$ $q=0·000073=6·20$ Micrometer divisions.
" April 17ᵈ —Oct. 8ᵈ $k=0·0000130$ $q=0·000073=5·60$ Micrometer divisions.

April 15ᵈ 20ʰ. Observation 20ᵐ late, caused by error in the house clock.
April 22ᵈ 20ʰ. The previous observations were made by Mr Russell; for the following I am responsible. J. A. B.
May 2ᵈ 23ʰ. Observation 30ᵐ late, omitted while observing Polaris.

Göttingen Mean Time of Declination Observation.				DECLINATION.	BIFILAR.		BALANCE.	
					Corrected.	Thermometer.	Corrected.	Thermometer.
	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
May	4	20	0	127·94	523·8	50·3	863·5	50·2
		23	0	134·60	512·3	50·8	851·7	50·6
May	5	2	0	140·55	524·9	52·8	833·8	52·1
		5	0	136·37	536·3	52·9	858·6	52·3
		20	0	126·46	534·2	51·1	857·6	50·9
		23	0	132·67	522·7	53·0	828·9	52·3
May	6	2	0	136·82	547·2	56·3	816·7	55·2
		5	0	140·76	546·0	57·6	850·4	56·5
		20	0	124·70	515·0	50·3	871·8	50·2
		23	0	133·17	508·2	50·7	858·1	50·6
May	7	2	0	140·87	525·2	51·6	883·7	51·1
		5	0	134·25	533·1	52·3	894·9	51·6
May	8	20	0	130·15	519·0	46·4	875·3	47·0
		23	0	133·33	510·3	47·9	863·3	48·0
May	9	2	0	137·70	531·4	50·5	853·6	49·6
		5	0	136·28	537·3	52·5	872·2	51·2
		20	0	127·23	509·9	46·0	881·2	46·6
		23	0	131·16	514·7	48·9	853·6	48·5
May	10	2	0	139·13	535·2	55·3	841·0	53·7
		5	0	133·48	541·1	58·5	883·1	56·8
		20	0	127·30	523·3	52·6	843·3	52·5
		23	0	132·33	516·9	54·3	845·5	53·8
May	11	2	0	137·58	534·5	56·7	851·7	55·9
		5	0	134·30	543·7	57·4	855·7	56·6
		20	0	127·05	519·6	50·0	848·6	50·2
		23	0	131·29	509·0	49·8	853·4	49·8
May	12	2	0	136·73	533·0	52·3	841·7	51·6
		5	3	133·13	541·9	55·8	837·0	54·4
		20	0	126·13	521·3	49·8	876·6	49·9
		23	0	131·32	518·3	52·5	854·8	51·9
May	13	2	0	137·77	530·5	58·9	816·6	57·1
		5	0	134·57	550·4	62·7	821·1	60·7
		20	0	125·55	525·5	54·6	856·9	54·9
		23	0	130·67	526·0	57·2	846·2	56·7
May	14	2	0	………	……	……	……	……
		5	0	133·64	545·2	65·5	826·7	63·7
May	15	20	0	126·05	526·7	54·5	849·4	55·1
		23	0	131·38	522·4	56·9	820·0	56·5
May	16	2	0	140·49	517·2	62·7	898·9	61·1
		5	0	149·71	574·3	67·0	998·4	64·7
May	16	20	0	123·57	518·3	55·8	850·4	56·2
		23	0	128·17	539·5	57·0	863·6	56·8
May	17	2	0	134·75	525·1	59·9	894·6	58·9
		5	0	129·30	529·6	62·9	918·9	61·2
		20	0	123·87	520·1	52·9	864·1	53·0
		23	0	127·30	508·5	54·0	872·6	53·8
May	18	2	0	129·92	526·2	57·8	868·4	56·7
		5	0	128·77	537·6	61·6	865·2	60·2
		20	0	121·38	523·3	52·9	857·2	53·0
		23	0	126·08	520·1	52·9	840·8	52·8
May	19	2	0	132·67	534·2	53·7	866·2	53·3
		5	0	128·23	535·3	54·2	903·7	53·7
		20	0	122·20	523·4	51·6	869·1	51·2
		23	0	126·82	525·7	54·7	831·1	53·8
May	20	2	0	129·78	533·4	58·5	835·0	57·1
		5	0	127·90	539·1	58·8	854·6	57·8
		20	0	125·28	523·4	51·0	872·5	50·9
		23	0	131·18	518·6	52·6	839·7	52·0
May	21	2	0	134·60	535·3	55·1	846·8	54·1
		5	0	130·45	546·7	56·4	864·7	55·5
May	22	20	0	123·33	529·6	53·6	877·5	53·7
		23	0	130·05	521·4	55·0	838·8	54·6
May	23	2	0	134·33	536·7	57·1	828·5	56·1
		5	0	132·53	543·9	60·3	834·2	58·9
		20	0	123·40	526·7	52·7	867·8	52·7
		23	0	126·82	528·4	55·8	828·2	55·2
May	24	2	0	131·98	546·3	58·4	810·7	57·4
		5	0	130·18	543·7	58·2	841·9	57·5
		20	0	122·20	529·3	53·4	841·7	53·1
		23	0	128·23	527·3	55·4	840·6	54·6
May	25	2	0	133·47	543·6	58·7	822·8	57·4
		5	0	130·18	551·7	61·1	828·5	59·7
		20	0	122·73	531·7	52·9	842·4	52·9
		23	0	129·52	522·3	55·4	838·1	54·8
May	26	2	0	135·22	535·3	59·7	813·3	58·2
		5	0	130·12	537·2	60·5	842·7	59·3
		20	0	122·87	530·3	53·7	847·7	53·6
		23	0	130·12	516·7	54·9	832·5	54·5
May	27	2	0	134·13	534·1	58·4	833·1	57·2
		5	0	129·98	543·3	61·4	840·5	59·9

BIFILAR. $k=0·0001248$ $q=0·000304=2·44$ Scale divisions.
BALANCE. April 17^{d}—Oct. 8^{d} $k=0·0000130$ $q=0·000073=5·60$ Micrometer divisions.

May 12^{d} 5^{h}. Observation 3^{m} late.

May 16^{d} 5^{h}. Extra observations.

The observations of Declination at the following times are corrected for torsion by the quantities annexed to them. (See note, May 30^{d}.) May 16^{d} 23^{h} till May 23^{d} 5^{h}—10′·93. May 23^{d} 20^{h} till May 30^{d} 20^{h}—13′.08. May 30^{d} 23^{h}—8′·39. May 31^{d} 2^{h}—2′·15. May 31^{d} 5^{h} till June 2^{d} 5^{h}—1′·95. June 2^{d} 20^{h} till June 3^{d} 5^{h}+0′·47.

May 23^{d} 22^{h}. A fibre of the Declinometer suspension thread was found broken; it was removed by cutting near the top and bottom ties.

May 24^{d} 8^{h}. Extra observations.

May 25^{d} 3^{h}. Extra observations during thunder-storm.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
May 27	20	0	126·62	528·3	54·8	848·4	56·2	June 9	20	0	125·95	523·8	57·9	846·1	58·1
	23	0	130·45	523·8	58·1	815·0	57·8		23	0	130·53	526·2	60·3	811·8	59·9
May 28	2	0	136·15	539·2	61·3	793·8	60·5	June 10	2	0	140·63	553·1	63·1	761·8	62·2
	5	0	131·92	543·3	63·0	811·5	62·3		5	0	138·01	544·7	64·0	786·4	63·7
May 29	20	0	125·88	529·2	55·8	846·4	55·6		20	0	125·23	529·4	58·5	827·6	58·6
	23	0	129·30	527·7	57·4	824·7	56·9		23	0	129·49	518·8	60·4	813·0	59·8
May 30	2	0	130·32	544·3	60·4	800·4	59·4	June 11	2	0	136·60	538·5	64·5	801·6	63·1
	5	0	128·43	545·1	61·4	819·9	60·3		5	0	135·45	551·5	69·3	802·5	66·9
	20	0	123·13	529·4	55·4	841·0	55·3	June 12	20	0	127·54	533·6	58·6	785·0	58·8
	23	0	125·68	522·7	57·1	808·8	56·6		23	0	130·05	524·6	60·9	820·2	60·4
May 31	2	0	130·52	542·1	61·0	793·8	59·8	June 13	2	0	139·20	538·6	68·0	795·1	66·0
	5	0	129·52	547·9	64·1	814·7	62·6		5	0	139·12	556·4	73·8	828·2	70·9
	20	0	123·60	531·7	54·2	827·1	54·4		20	0	132·37	522·1	65·2	772·9	65·5
	23	0	127·77	530·4	55·9	826·4	55·7		23	0	131·05	509·2	66·0	806·7	65·8
June 1	2	0	132·93	540·3	57·5	788·6	56·8	June 14	2	0	139·45	532·6	69·9	827·1	68·6
	5	0	129·78	549·5	58·5	826·4	57·9		5	0	138·49	563·9	72·3	848·1	70·9
	20	0	125·15	532·9	54·1	821·8	54·3		20	0	129·52	525·5	61·7	792·8	61·9
	23	0	127·77	531·5	55·4	791·5	55·1		23	0	129·65	520·2	62·5	807·3	62·3
June 2	2	0	135·48	549·0	59·0	796·6	58·2	June 15	2	0	133·35	537·2	64·5	812·6	63·9
	5	0	132·53	547·5	62·4	832·6	60·9		5	0	134·05	550·3	68·7	803·0	67·1
	20	0	119·92	529·2	54·8	854·6	55·2		20	0	125·53	525·0	61·9	825·1	61·9
	23	0	125·08	531·8	56·9	840·4	56·5		23	0	130·42	526·8	63·6	827·9	63·1
June 3	2	0	130·25	535·8	63·6	804·0	61·9	June 16	2	0	134·93	534·8	64·6	813·6	63·7
	5	0	131·92	554·9	68·5	824·4	66·2		5	0	133·13	542·9	64·7	831·8	64·1
	20	0	123·93	526·8	60·4	834·1	60·5		20	0	124·97	526·1	55·7	843·1	55·7
	23	0	129·56	533·6	63·0	797·2	62·4		23	0	133·73	520·1	56·9	825·1	56·6
June 4	2	0	134·44	549·4	68·4	772·5	66·7	June 17	2	0	136·88	540·3	59·2	807·5	58·3
	5	0	139·55	553·8	70·5	771·9	68·9		5	0	133·91	540·5	61·3	827·0	60·2
June 5	20	0	123·33	522·3	59·2	834·7	59·2		20	0	126·52	528·5	53·5	835·3	53·5
	23	0	130·92	516·1	61·3	819·4	60·6		23	0	130·29	528·4	56·3	824·3	55·7
June 6	2	0	133·27	536·9	65·3	811·0	64·0	June 18	2	0	134·38	538·3	59·9	797·5	58·5
	5	0	128·81	543·1	67·6	829·6	66·3		5	0	133·80	547·8	62·1	805·9	60·9
	20	0	………	517·5	58·9	808·9	59·2	June 19	20	0	127·18	530·3	55·0	849·5	55·0
	23	0	130·82	513·5	60·4	835·7	60·1		23	0	129·73	529·5	55·9	839·4	55·5
June 7	2	0	137·68	531·2	65·5	813·2	64·0	June 20	2	0	134·33	542·0	58·7	830·5	57·6
	5	0	129·62	548·8	69·7	813·8	67·8		5	0	132·97	559·8	63·0	819·7	61·3
	20	0	126·48	……	……	819·3	60·7		20	0	126·15	527·8	58·8	831·3	58·9
	23	0	127·00	526·2	63·4	830·0	62·9		23	0	128·10	524·4	61·0	824·0	60·4
June 8	2	0	134·83	535·4	68·1	815·9	66·8	June 21	2	0	134·15	536·3	65·0	784·8	63·7
	5	0	132·44	551·9	70·7	804·4	69·1		5	0	130·18	544·5	68·3	796·3	66·5
	20	0	123·00	521·5	59·4	817·4	59·9		20	0	123·73	537·6	59·8	826·8	60·2
	23	0	128·65	523·0	60·4	808·6	60·4		23	0	130·05	523·6	60·9	804·6	60·7
June 9	2	0	138·05	526·4	64·3	812·1	63·3	June 22	2	0	135·35	538·8	64·0	785·8	63·1
	5	0	136·99	545·8	66·5	834·2	65·3		5	0	131·55	553·5	66·9	796·0	65·4

BIFILAR. $k=0·0001248$ $q=0·000304=2·44$ Scale divisions.

BALANCE. April 17d—Oct. 8d $k=0·0000130$ $q=0·000073=5·60$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading. June 3d 6h, 215°. June 6d 20h, 329°. (See note below.) June 18d 6h, 338°. June 20d 21h, 40°.

May 30d 20h. The Declinometer magnet having been removed, and the brass bar inserted, in order to make the Dip observation, the brass bar was allowed to move freely, to find if any torsion existed, when it went round about 400°. See Introduction for remarks on this torsion, and the correction of observations.

June 6d 20h. Found two fibres of the Declinometer suspension thread broken, which had induced a considerable quantity of torsion. The fibres were cut off, and the torsion eliminated.

June 18d 6h; 21d 8h; 26d 23h. Observations made to determine the value $\frac{H}{F}$ for Declinometer thread.

DAILY OBSERVATIONS OF MAGNETOMETERS, JUNE 22—JULY 18. 1842.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
June 22	20	0	123·02	517·3	58·6	781·6	59·2	July 5	20	0	128·90	517·8	54·8	795·4	55·1
	23	0	127·81	528·4	60·9	792·4	60·7		23	0	126·33	529·8	57·3	824·9	56·6
June 23	2	0	133·02	548·4	64·7	796·0	65·0	July 6	2	0	134·13	538·1	60·4	808·1	59·3
	5	0	129·73	549·2	67·5	806·5	66·4		5	0	131·38	542·6	63·7	805·5	62·1
	20	0	124·04	515·3	59·9	823·8	60·1		20	0	125·79	524·1	54·2	828·5	54·6
	23	0	126·43	509·3	60·9	831·9	60·7		23	0	126·25	520·6	55·4	825·9	55·3
June 24	2	0	134·30	529·6	63·4	846·2	62·7	July 7	2	0	133·05	527·5	57·9	824·9	57·1
	5	0	131·70	545·8	65·2	827·6	64·2		5	0	131·62	540·8	58·6	831·7	57·9
	20	0	122·27	529·0	58·2	818·1	58·3		20	0	124·88	526·0	54·3	845·5	54·3
	23	0	129·23	517·6	59·1	836·7	58·0		23	0	126·35	520·1	56·2	801·6	55·7
June 25	2	0	129·18	542·1	60·4	812·9	60·0	July 8	2	0	134·33	531·4	59·9	816·2	58·8
	5	0	131·10	545·3	60·4	818·6	60·1		5	0	132·95	543·1	61·4	815·5	60·2
June 26	20	0	123·30	528·8	58·2	820·6	57·7		20	0	130·15	532·0	56·4	697·8	56·4
	23	0	127·63	526·6	59·9	806·4	59·2		23	0	130·05	525·7	59·1	795·3	58·3
June 27	2	0	134·79	543·0	63·1	790·5	61·9	July 9	2	0	135·92	535·6	62·7	829·7	61·4
	5	0	132·48	549·8	65·7	798·6	64·2		5	0	134·33	565·6	65·1	861·7	63·7
	20	0	124·13	531·4	56·4	833·5	56·7	July 10	20	0	127·54	520·8	56·3	828·4	56·3
	23	0	126·94	521·7	57·3	806·7	57·1		23	0	129·78	505·5	56·5	829·2	56·4
June 28	2	0	133·93	532·8	59·9	799·5	59·2	July 11	2	0	136·57	531·9	59·3	827·6	58·5
	5	0	132·73	550·7	62·5	815·9	61·2		5	0	131·32	545·2	62·4	834·4	61·2
	20	0	124·42	537·7	58·4	821·1	58·3		20	0	124·04	532·3	59·0	828·6	59·1
	23	0	128·74	530·7	59·5	812·8	59·2		23	0	126·90	524·2	60·6	818·1	60·1
June 29	2	0	133·05	546·7	61·4	791·7	60·5	July 12	2	0	135·53	541·0	64·6	804·7	63·3
	5	0	132·78	550·4	63·1	787·7	62·2		5	0	131·83	553·6	66·8	815·5	65·3
	20	0	121·98	534·8	57·9	807·8	56·9		20	0	123·80	534·7	60·3	820·2	60·2
	23	0	128·85	527·3	59·6	790·0	59·1		23	0	126·48	523·4	62·5	829·1	61·6
June 30	2	0	133·48	540·1	64·2	772·6	62·7	July 13	2	0	131·78	535·6	65·1	790·8	64·0
	5	0	133·27	546·4	66·4	785·0	65·1		5	0	131·60	545·4	66·3	810·6	65·3
	20	0	123·75	528·1	59·8	786·1	59·9		20	0	122·45	526·4	58·3	833·5	58·5
	23	0	131·96	523·5	62·5	790·8	61·8		23	0	129·41	521·0	59·3	830·4	59·2
July 1	2	0	136·52	543·0	66·1	757·7	65·0	July 14	2	0	131·00	528·3	61·4	805·5	60·6
	5	0	133·50	549·8	68·4	805·7	66·9		5	5	129·80	539·6	63·5	813·4	62·3
	20	0	126·39	479·9	58·4	618·5	58·7		20	0	125·23	535·5	56·8	818·1	56·7
	23	0	130·65	502·1	58·4	731·7	58·5		23	0	128·83	530·6	59·1	796·5	58·4
July 2	2	0	138·01	542·4	60·0	809·6	59·9	July 15	2	0	133·24	540·4	64·4	788·0	62·8
	5	0	137·41	559·0	61·6	799·2	61·2		5	0	130·72	551·1	68·7	789·2	66·7
July 3	20	0	132·20	443·6	56·4	522·6	56·4		20	0	122·65	524·8	60·2	801·6	60·4
	23	0	133·27	502·6	58·2	742·1	57·9		23	0	128·20	527·2	63·3	786·3	62·5
July 4	2	0	123·90	625·6	60·5	1062·8	59·9	July 16	2	0	133·00	545·2	68·6	780·0	67·1
	5	0	129·49	573·9	62·5	959·3	61·7		5	0	129·49	548·0	71·6	795·2	69·7
	20	0	123·20	512·2	59·0	831·0	59·2	July 17	20	0	122·80	532·8	59·9	825·2	59·9
	23	0	135·65	501·6	61·1	848·9	60·5		23	0	128·77	525·0	61·7	805·0	61·1
July 5	2	0	134·86	531·5	62·6	812·6	61·9	July 18	2	0	135·08	536·5	63·9	784·7	62·9
	5	0	132·27	530·4	63·4	826·4	62·7		5	0	131·78	542·3	65·8	796·7	64·5

BIFILAR. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.

BALANCE. April 17^{d}—Oct. 8^{d} $k=0{\cdot}0000130$ $q=0{\cdot}000073=5{\cdot}60$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 40°. June 24^{d} 7^{h}, 57°. June 26^{d} 20^{h}, 230°. (See note below.) June 27^{d} 20^{h}, 235°. July 1^{d} 7^{h}, 312°. July 4^{d} 20^{h}, 312°. July 8^{d} 8^{h}, 342°. July 15^{d} 8^{h}, 4°.

June 26^{d} 20^{h}. A fibre of the Declinometer suspension thread found broken; removed after the observation; when the torsion was tried, its effect was found equivalent to + 7′·79. The reading at 20^{h} was therefore corrected by — 7′·79.

July 1^{d}—4^{d}. Extra observations.

July 9^{d} 5^{h}. Extra observations.

July 14^{d} 5^{h}. Observation 5^{m} late. Instruments quite stationary.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
July 18	20	0	125·88	537·2	59·5	772·9	59·5
	23	0	129·05	534·0	59·8	792·2	59·6
July 19	2	0	134·75	530·2	61·3	800·0	60·5
	5	0	132·82	544·4	62·7	808·4	61·7
	20	0	132·40	523·2	56·8	794·7	56·6
	23	0	130·30	521·4	57·1	806·6	56·8
July 20	2	0	132·27	540·3	58·5	798·9	57·9
	5	0	132·30	547·3	58·8	816·3	58·3
	20	0	120·93	530·8	59·1	803·5	59·2
	23	0	125·22	526·9	60·6	786·5	60·1
July 21	2	0	132·38	538·9	63·2	794·1	62·3
	5	0	130·52	543·8	62·7	798·5	63·1
	20	0	121·15	527·3	55·4	822·0	55·4
	23	0	125·55	527·4	56·3	819·9	56·1
July 22	2	0	133·67	548·1	59·1	794·8	58·2
	5	0	132·84	558·7	62·5	807·9	60·7
	20	0	131·75	521·0	52·9	779·3	53·1
	23	0	128·88	524·7	55·3	800·7	54·9
July 23	2	0	136·45	542·4	62·6	801·6	60·6
	5	0	130·73	571·7	70·4	825·9	67·3
July 24	20	0	123·05	528·9	62·3	783·9	62·4
	23	0	128·87	519·1	63·9	786·8	63·3
July 25	2	0	135·22	538·3	64·9	782·5	65·0
	5	0	130·83	545·3	68·2	788·7	66·8
	20	0	122·87	529·2	60·4	798·2	60·4
	23	0	130·09	523·3	63·1	780·6	62·3
July 26	2	0	134·83	544·1	66·2	761·0	65·0
	5	0	130·83	548·8	68·1	783·9	66·6
	20	0	121·38	528·9	60·4	794·8	60·5
	23	0	128·54	527·9	62·9	780·9	62·3
July 27	2	0	136·95	542·9	65·9	773·5	64·9
	5	0	132·91	553·8	67·4	793·2	66·3
	20	0	123·00	530·4	58·6	798·7	59·1
	23	0	127·23	525·6	59·5	798·8	59·5
July 28	2	0	135·03	544·8	60·9	776·1	60·6
	5	0	131·90	551·2	63·8	802·1	62·7
	20	0	122·70	524·6	56·9	812·4	57·1
	23	0	126·80	520·2	57·7	791·1	57·6
July 29	2	0	134·48	555·1	59·8	753·3	59·2
	5	0	134·07	547·7	61·5	800·5	60·7
	20	0	123·87	524·5	54·5	797·4	54·9
	23	0	127·87	521·6	57·4	793·2	56·7
July 30	2	0	133·13	540·5	61·7	770·2	60·4
	5	0	132·31	554·2	64·4	801·7	63·0
July 31	20	0	124·27	519·1	60·9	714·0	61·3
	23	0	129·69	519·9	63·4	789·6	62·8
Aug. 1	2	0	130·72	555·0	69·5	798·1	67·7
	5	0	134·75	564·6	74·3	772·2	72·0
	20	0	124·72	527·5	62·5	784·0	62·9
	23	30	127·80	531·7	65·7	758·1	65·2
Aug. 2	2	0	135·20	541·5	67·7	756·3	66·7
	5	0	130·90	543·8	70·7	763·0	69·2
	20	0	126·00	528·4	58·8	799·4	59·4
	23	0	127·98	531·0	61·8	778·3	61·3
Aug. 3	2	0	133·38	541·6	68·0	758·8	66·5
	5	0	128·47	545·5	70·6	761·2	69·0
	20	0	125·62	530·0	61·3	788·2	61·7
	23	0	128·30	518·5	61·2	780·0	61·5
Aug. 4	2	0	132·65	539·7	63·5	774·7	62·9
	5	0	129·49	557·9	65·6	773·0	64·7
	20	0	128·40	531·3	62·3	729·3	62·0
	23	0	138·92	517·3	64·7	766·7	63·8
Aug. 5	2	0	136·95	548·4	67·0	760·2	65·8
	5	0	131·65	548·0	67·4	793·0	66·5
	20	0	131·78	506·9	56·9	714·8	57·3
	23	0	125·82	494·9	58·8	792·4	58·6
Aug. 6	2	0	134·82	529·2	62·6	794·2	61·6
	5	0	124·07	531·6	65·6	880·9	64·1
Aug. 7	20	0	123·13	532·1	57·9	774·6	58·1
	23	0	129·08	519·5	59·8	787·7	59·3
Aug. 8	2	0	132·51	540·0	64·0	786·7	62·7
	5	0	129·49	548·6	65·4	791·2	64·1
	20	0	124·59	533·3	62·8	770·2	62·7
	23	0	126·98	530·0	64·9	755·3	64·1
Aug. 9	2	0	133·05	533·2	67·9	765·3	66·7
	5	0	130·18	547·1	69·9	762·0	68·5
	20	0	124·62	537·2	63·8	779·6	63·8
	23	0	127·47	526·8	66·8	769·0	66·2
Aug. 10	2	0	132·55	542·3	72·1	746·6	70·6
	5	0	128·97	551·4	73·2	754·6	71·9
	20	0	123·82	526·8	63·9	753·9	64·2
	23	0	126·32	525·3	62·8	770·1	63·3
Aug. 11	2	0	132·80	537·6	64·6	790·4	64·5
	5	0	129·92	556·5	65·5	784·8	65·2
	20	0	123·07	530·3	60·7	771·1	60·7
	23	0	137·12	518·2	62·8	772·5	62·2
Aug. 12	2	0	134·20	537·4	65·6	764·7	64·5
	5	0	129·82	542·7	66·9	784·8	65·9

BIFILAR. $k=0·0001248$ $q=0·000304=2·44$ Scale divisions.

BALANCE. April 17^{d}—Oct. 8^{d} $k=0·0000130$ $q=0·000073=5·60$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 4°. July 19^{d} 20^{h}, 61°. (See note below.) July 20^{d} 6^{h}, 80°. July 22^{d} 7^{h}, 101°. July 25^{d} 21^{h}, 108°. July 29^{d} 6^{h}, 118°. Aug. 1^{d} 21^{h}, 110°. Aug. 5^{d} 6^{h}, 124°. Aug. 8^{d} 21^{h}, 118°.

July 18^{d} 20^{h}. A fibre of Declination suspension thread found broken. Torsion removed. Observation at 20^{h} corrected for torsion by — 3′·35.

July 19^{d} 5^{h}. A thread prepared on May 26, and having a brass weight suspended by it since, was now inserted. This thread is composed of 20 fibres, instead of 16, as formerly. The torsion was completely removed. Brass bar left in during the night.

July 19^{d} 20^{h}. Observation of Declination 43^{m} too late, delayed during the elimination of torsion.

July 20^{d} 5^{h}. The Bifilar reading is 53^{m} too late; omitted accidentally.

July 22^{d} 20^{h}; 29^{d} 5^{h}; 31^{d} 20^{h}; Aug. 4^{d}. Extra observations.

Aug. 1^{d} 23^{h}. Observation 30^{m} late.

DAILY OBSERVATIONS OF MAGNETOMETERS, AUGUST 12—SEPTEMBER 7. 1842.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Aug. 12	20	0	125·17	536·3	64·5	769·3	64·2
	23	0	128·83	531·5	66·1	754·8	65·4
Aug. 13	2	0	132·33	537·4	69·0	748·9	67·8
	5	0	126·87	541·7	68·6	775·6	67·8
Aug. 14	20	0	123·64	530·8	61·9	794·1	62·2
	23	0	127·94	530·0	64·1	769·8	62·7
Aug. 15	2	0	131·82	540·5	70·7	749·0	69·3
	5	0	126·85	547·3	73·7	778·7	72·2
	20	0	123·22	528·8	62·5	782·1	62·7
	23	0	128·40	526·4	63·6	772·0	63·3
Aug. 16	2	0	132·51	540·3	65·5	763·4	64·7
	5	0	127·78	546·6	66·9	769·3	66·0
	20	0	120·15	532·2	61·3	758·2	61·2
	23	0	130·63	535·6	62·8	733·3	62·3
Aug. 17	2	0	136·95	552·3	67·7	740·1	66·2
	5	0	130·22	558·4	74·1	730·1	71·9
	20	0	126·22	528·5	66·4	711·8	66·6
	23	0	133·77	518·0	68·7	738·6	68·1
Aug. 18	2	0	134·07	541·9	75·1	720·6	73·6
	5	0	127·85	558·3	79·0	807·2	77·1
	20	0	127·83	516·0	69·6	755·0	69·8
	23	0	132·53	523·3	70·4	715·6	70·2
Aug. 19	2	0	129·30	567·9	71·4	764·4	70·9
	5	0	125·05	595·2	72·0	1123·6	71·6
	20	0	124·20	519·8	64·9	799·8	65·2
	23	0	135·62	518·4	65·4	774·7	65·4
Aug. 20	2	0	135·59	536·4	65·2	775·2	65·3
	5	0	128·57	538·8	64·9	799·3	64·9
Aug. 21	20	0	123·84	519·4	56·7	802·5	57·2
	23	0	130·22	519·3	57·7	794·8	57·8
Aug. 22	2	0	137·18	545·0	62·7	779·8	61·4
	5	0	129·60	552·5	66·7	790·5	65·0
	20	0	123·04	527·2	59·4	786·0	59·6
	23	0	133·20	521·7	61·9	781·7	61·5
Aug. 23	2	0	132·50	547·5	68·3	756·8	66·6
	5	0	130·18	542·6	72·2	756·0	70·4
	20	0	122·91	534·7	64·6	773·3	64·9
	23	0	128·74	529·1	63·6	762·3	63·8
Aug. 24	2	0	137·68	540·4	63·4	772·1	63·5
	5	0	131·80	538·5	63·5	845·8	63·5
	20	0	123·84	522·3	53·6	798·2	53·2
	23	0	130·09	520·9	54·8	799·4	54·6
Aug. 25	2	0	134·28	544·4	60·4	785·1	59·1
	5	0	128·27	548·9	63·6	804·7	61·8
Aug. 25	20	0	121·55	530·6	57·9	801·9	57·8
	23	0	127·75	529·3	59·4	777·2	58·9
Aug. 26	2	0	133·60	546·2	61·5	768·4	60·6
	5	0	128·54	552·7	63·8	783·9	62·5
	20	0	123·00	533·8	60·5	759·1	60·7
	23	0	124·85	525·8	60·8	759·7	60·9
Aug. 27	2	0	131·45	542·7	64·4	751·8	63·9
	5	0	127·43	556·9	66·7	753·7	65·8
Aug. 28	20	0	120·38	531·9	60·0	794·8	60·0
	23	0	127·97	523·7	61·4	781·7	61·1
Aug. 29	2	0	133·55	544·4	66·4	750·9	65·2
	5	0	127·57	549·3	71·6	746·5	69·8
	20	0	122·85	529·8	62·9	775·9	63·2
Aug. 30	0	0	130·98	530·9	63·6	744·9	63·6
	2	0	132·64	539·8	64·5	759·2	64·1
	5	0	126·25	540·5	64·1	781·1	64·0
	20	0	123·50	526·4	52·8	790·1	53·5
	23	0	127·72	524·3	54·6	790·8	54·5
Aug. 31	2	0	131·05	540·7	59·9	759·0	58·7
	5	0	127·00	548·0	63·7	767·4	62·0
	20	0	121·84	533·9	56·0	788·7	56·2
	23	0	127·61	527·1	56·9	765·8	56·7
Sept. 1	2	0	131·78	544·4	60·5	758·3	59·5
	5	0	124·52	551·2	63·5	771·1	62·2
	20	0	123·87	542·4	64·0	748·3	63·4
	23	0	131·72	523·8	64·9	760·2	64·2
Sept. 2	2	0	132·42	538·8	65·7	766·9	65·2
	5	0	130·96	542·5	66·2	849·2	65·7
	20	0	125·65	533·9	63·4	747·2	63·3
	23	0	129·89	520·3	63·9	761·4	63·7
Sept. 3	2	0	133·67	536·2	65·0	781·5	64·6
	5	0	125·60	539·4	64·9	790·8	64·6
Sept. 4	20	0	125·22	517·4	54·4	770·1	54·8
	23	0	130·60	530·6	55·6	775·6	55·6
Sept. 5	2	0	134·20	539·2	58·4	776·1	57·5
	5	0	129·25	553·4	59·8	803·2	58·9
	20	0	125·50	532·5	57·6	772·7	57·7
	23	0	132·37	519·8	58·7	768·4	58·4
Sept. 6	2	0	133·10	543·3	61·3	768·3	60·6
	5	0	127·85	546·4	62·5	795·2	61·7
	20	0	124·82	524·1	52·6	793·6	53·1
	23	0	130·32	519·7	54·3	794·2	54·2
Sept. 7	2	0	134·18	543·9	58·3	768·6	57·2
	5	0	127·85	546·3	62·4	782·8	60·7

BIFILAR. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.

BALANCE. April 17^{d}—Oct. 8^{d} $k=0{\cdot}0000130$ $q=0{\cdot}000073=5{\cdot}60$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 118°. Aug. 15^{d} 21^{h}, 123°. Aug. 22^{d} 21^{h}, 135°. Aug. 29^{d} 21^{h}, 147°. Sept. 5^{d} 21^{h}, 147°.

Aug. 16^{d} 20^{h}; 19^{d} 5^{h}; 24^{d} 5^{h}; Sept. 2^{d} 3^{h}—9^{h}; Sept. 5^{d} 6^{h}. Extra observations.
Aug. 22^{d} 7^{h}. Observation to determine the value of $\frac{H}{F}$ for the Declinometer thread.
Aug. 26^{d}. Wind vane put up in Observatory.
Aug. 30^{d} 0^{h}. Observation 1^{h} late, by mistake.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	°	Sc. Div.	Mic. Div.	°
Sept. 7	20	0	125·33	535·4	57·2	775·1	57·3	Sept. 21	20	0	130·16	534·3	59·9	773·1	61·1
	23	0	129·32	523·4	57·8	777·5	57·7		23	0	136·30	528·3	60·6	769·4	61·7
Sept. 8	2	0	134·08	536·6	58·9	773·4	58·7	Sept. 22	2	0	140·23	548·5	62·5	750·8	62·5
	5	0	128·28	550·9	60·5	793·7	59·9		5	0	134·42	544·5	61·4	786·6	62·7
	20	0	124·27	529·2	55·4	793·6	55·6		20	0	132·30	538·2	56·0	757·3	56·4
	23	0	129·37	518·2	55·8	786·7	55·8		23	0	136·37	525·1	57·4	794·4	57·2
Sept. 9	2	0	135·48	534·8	59·0	769·4	58·2	Sept. 23	2	0	133·13	539·2	58·6	785·3	58·2
	5	0	127·00	557·8	62·1	833·6	60·7		5	0	127·83	540·8	58·9	811·5	58·5
	20	0	125·46	529·8	55·5	792·3	55·7		20	0	124·59	535·8	54·2	778·2	54·3
	23	0	130·43	525·5	56·5	790·1	56·4		23	0	127·14	526·8	53·8	784·0	53·9
Sept. 10	2	0	134·33	541·5	59·4	781·1	58·7	Sept. 24	2	0	131·80	537·8	54·1	775·5	54·0
	5	0	129·69	542·6	61·3	779·5	60·3		5	0	128·81	544·3	59·4	804·6	59·2
Sept. 11	20	0	125·62	531·2	55·5	755·7	55·6	Sept. 25	20	0	122·20	531·1	52·0	791·4	51·8
	23	0	127·63	526·0	56·2	777·8	56·1		23	0	125·32	526·5	54·2	785·8	54·0
Sept. 12	2	0	135·08	532·9	58·8	773·8	58·1	Sept. 26	2	0	130·22	541·3	58·8	766·3	58·8
	5	0	127·83	545·3	61·8	775·0	60·3		5	0	127·68	549·0	61·7	766·1	62·2
	20	0	122·70	519·2	53·9	785·4	54·1		20	0	123·80	533·4	52·3	784·6	52·6
	23	0	133·24	508·8	54·8	802·7	54·8		23	0	126·52	522·6	52·6	783·1	52·8
Sept. 13	2	0	138·95	548·9	57·7	785·5	56·7	Sept. 27	2	0	134·00	538·4	55·3	762·4	54·6
	5	0	127·17	542·9	60·8	800·1	59·4		5	0	128·97	548·0	57·6	788·2	57·5
	20	0	125·03	535·6	59·2	746·4	59·1		20	0	123·95	536·5	50·5	795·5	50·5
	23	0	130·78	527·5	60·4	762·5	59·9		23	0	126·43	526·1	50·4	778·6	50·2
Sept. 14	2	0	133·60	541·2	63·4	763·7	62·3	Sept. 28	2	0	132·13	541·6	57·5	767·9	57·8
	5	0	129·56	550·6	65·4	766·0	64·2		5	0	128·65	547·3	58·9	771·1	59·3
	20	0	126·68	530·1	60·6	762·6	60·7		20	0	122·82	539·0	50·0	754·8	50·2
	23	0	131·49	529·4	60·6	758·6	60·7		23	0	135·65	503·7	50·9	786·6	51·0
Sept. 15	2	0	134·47	540·4	63·6	757·7	62·8	Sept. 29	2	0	133·51	536·6	53·5	816·9	53·0
	5	0	127·20	538·6	65·0	781·5	64·2		5	0	128·23	544·6	59·9	849·7	59·3
	20	0	133·98	528·7	59·6	758·7	59·7		20	0	127·63	524·5	47·5	779·7	48·2
	23	0	134·30	530·8	60·8	768·3	60·6		23	0	126·25	531·2	48·8	791·3	48·0
Sept. 16	2	0	136·22	536·8	63·9	789·6	63·0	Sept. 30	2	0	131·45	531·7	53·8	785·2	52·6
	5	0	128·97	542·2	65·8	791·0	64·7		5	0	130·50	528·1	55·8	813·6	54·4
	20	0	131·32	536·7	59·4	708·8	59·7		20	0	126·43	531·8	46·7	778·5	47·3
	23	0	136·50	528·3	60·7	753·0	60·5		23	0	129·17	523·7	47·5	795·4	47·6
Sept. 17	2	0	133·62	542·4	62·3	780·5	61·7	Oct. 1	2	0	130·80	535·9	51·0	775·2	50·1
	5	0	129·37	541·5	62·5	799·1	62·2		5	0	129·01	538·7	53·5	776·6	52·3
Sept. 18	20	0	130·45	528·5	53·4	773·6	53·6	Oct. 2	20	0	126·94	536·2	51·7	761·3	51·7
	23	0	132·27	526·2	53·8	789·7	53·8		23	0	127·90	528·0	51·8	772·3	51·7
Sept. 19	2	0	133·73	542·8	55·9	778·2	55·4	Oct. 3	2	0	132·25	538·0	52·6	769·2	52·1
	5	0	127·70	542·9	60·1	790·0	58·4		5	0	130·25	536·1	53·0	775·8	52·3
	20	0	124·62	529·2	54·0	776·1	54·1		20	0	124·93	536·1	43·5	772·7	44·3
	23	0	135·45	524·1	54·8	764·7	54·7		23	0	128·40	520·1	43·5	792·4	44·0
Sept. 20	2	0	137·83	550·2	58·5	756·7	57·5	Oct. 4	2	0	133·77	539·8	48·6	777·7	47·6
	5	0	135·52	545·5	62·4	791·5	60·4		5	0	129·78	546·6	52·9	784·7	51·0
	20	0	135·42	525·5	50·4	756·7	50·8		20	0	125·82	535·3	45·9	779·8	46·1
	23	0	133·13	521·9	52·3	777·2	52·6		23	0	127·58	526·6	47·5	783·1	47·1
Sept. 21	2	0	137·30	539·0	58·6	768·6	58·1	Oct. 5	2	0	132·27	540·7	51·9	766·4	50·6
	5	0	130·75	544·3	61·4	808·2	60·4		5	0	132·77	547·7	53·9	777·6	52·5

BIFILAR. $k=0\cdot0001248$ $q=0\cdot000304=2\cdot44$ Scale divisions.

BALANCE. April 17^{d}—Oct. 8^{d} $k=0\cdot0000130$ $q=0\cdot000073=5\cdot60$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 147°. Sept. 9^{d} 6^{h}, 147°. Sept. 12^{d} 21^{h}, 127°. Sept. 16^{d} 20^{h}, 137°. Sept. 23^{d} 6^{h}, 153°. Sept. 26^{d} 21^{h}, 146°. Oct. 3^{d} 21^{h}, 157°.

Sept. 20^{d} 5^{h} till 21^{d} 8^{h}. Extra observations hourly.

Göttingen Mean Time of Declination Observation.				DECLINATION.	BIFILAR.		BALANCE.	
					Corrected.	Thermometer.	Corrected.	Thermometer.
	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Oct.	5	20	0	125·37	540·5	50·0	760·8	50·0
		23	0	129·35	525·3	50·8	765·3	50·5
Oct.	6	2	0	134·11	540·2	54·2	758·6	53·1
		5	0	130·18	542·1	55·2	781·7	54·3
		20	0	124·59	541·4	50·8	763·7	50·6
		23	0	127·27	525·5	52·4	766·1	51·8
Oct.	7	2	0	135·59	535·8	54·9	752·7	54·0
		5	0	130·23	551·1	57·3	750·4	56·1
		20	0	126·12	528·8	45·8	776·3	46·6
		23	0	132·25	518·5	45·8	780·9	46·5
Oct.	8	2	0	136·80	540·7	49·7	783·9	48·8
		5	0	129·23	550·5	56·3	784·7	54·1
Oct.	9	20	0	124·65	538·0	50·5	754·6	50·3
		23	0	128·63	532·7	51·6	746·8	51·1
Oct.	10	2	0	131·98	544·3	54·4	746·3	53·3
		5	0	126·45	542·8	56·4	744·1	55·3
		20	0	124·95	541·5	53·6	747·8	53·1
		23	0	128·10	535·7	55·4	742·3	54·6
Oct.	11	2	0	130·89	544·7	60·0	726·3	58·7
		5	0	126·26	547·7	62·9	729·3	61·2
		20	0	124·42	535·0	47·8	758·6	48·6
		23	0	125·92	519·3	47·7	771·7	48·0
Oct.	12	2	0	131·36	534·9	52·1	758·8	51·1
		5	0	126·28	547·9	57·4	744·3	55·4
		20	0	124·35	535·4	44·3	762·0	45·1
		23	0	127·50	536·7	48·1	786·8	49·0
Oct.	13	2	0	134·50	542·1	59·9	719·0	59·5
		5	0	133·30	542·3	60·5	815·2	59·6
		20	0	132·97	531·8	50·5	750·8	50·7
		23	0	125·99	527·5	51·6	758·8	51·4
Oct.	14	2	0	131·89	538·4	55·7	742·4	54·6
		5	0	133·44	532·7	57·5	826·6	56·5
		20	0	125·42	536·6	51·9	755·1	52·0
		23	0	130·18	528·0	52·7	757·7	52·4
Oct.	15	2	0	132·50	544·5	57·3	749·1	55·9
		5	0	127·20	547·4	60·6	739·1	59·0
Oct.	16	20	0	126·05	534·4	50·0	749·7	49·9
		23	0	128·80	518·3	49·8	755·0	49·7
Oct.	17	2	0	132·27	537·6	50·7	763·6	50·3
		5	0	116·43	547·0	51·0	792·3	50·6
		20	0	126·46	529·3	46·5	758·1	46·9
		23	0	126·45	523·7	46·0	762·1	46·4
Oct.	18	2	0	130·92	548·7	57·4	747·5	57·9
		5	0	126·30	542·2	57·5	767·2	57·6
		20	0	122·84	524·1	41·2	754·9	42·1
		23	0	130·22	525·0	41·7	866·0	42·2
Oct.	19	2	0	134·30	530·2	43·1	880·6	43·3
		5	0	128·17	539·2	44·5	784·2	44·0
Oct.	19	20	0	126·15	536·3	49·1	773·5	51·6
		23	0	131·22	529·3	50·7	757·1	52·6
Oct.	20	2	0	135·86	545·7	53·0	759·3	54·2
		5	0	130·98	550·7	54·9	763·1	56·2
		20	0	125·68	524·5	42·0	758·1	44·0
		23	0	127·50	526·4	44·7	786·2	46·2
Oct.	21	2	0	133·65	541·1	51·3	766·0	51·6
		5	0	126·82	546·1	52·5	775·1	52·9
		20	0	124·48	535·6	47·1	756·3	45·7
		23	0	127·85	517·7	46·0	766·1	47·0
Oct.	22	2	0	132·58	535·0	47·7	767·3	47·9
		5	0	126·90	540·9	48·2	766·2	48·2
Oct.	23	20	0	124·40	529·8	43·0	768·3	42·8
		23	0	130·05	521·0	43·2	787·2	43·7
Oct.	24	2	0	133·07	533·9	51·1	773·0	51·6
		5	0	126·52	538·0	52·6	776·6	53·0
		20	0	124·86	530·4	38·6	762·9	40·1
		23	0	127·80	524·6	38·0	775·0	39·1
Oct.	25	2	0	130·78	541·2	47·2	776·4	48·5
		5	0	127·10	534·8	49·8	785·5	50·7
		20	0	125·86	531·5	38·6	764·1	40·5
		23	0	129·72	524·6	39·1	771·4	40·7
Oct.	26	2	0	131·92	540·8	49·2	775·6	51·1
		5	0	128·60	544·3	50·7	767·9	51·6
		20	0	128·41	543·0	46·5	762·1	48·4
		23	0	130·23	532·5	50·4	755·2	51·8
Oct.	27	2	0	136·53	545·6	55·3	747·0	56·7
		5	0	129·53	543·0	54·3	794·6	56·0
		20	0	128·70	528·6	44·4	751·3	45·4
		23	0	129·30	532·9	45·5	771·8	46·5
Oct.	28	2	0	131·50	541·0	53·9	751·0	54·5
		5	0	130·47	539·0	53·8	769·2	54·4
		20	0	125·99	533·5	46·5	755·5	48·1
		23	0	127·32	534·7	50·9	768·5	51·4
Oct.	29	2	0	131·45	536·1	52·4	763·1	52·9
		5	0	128·95	542·6	55·5	759·6	56·2
Oct.	30	20	0	125·15	537·5	47·2	742·7	47·3
		23	0	125·60	538·5	49·5	764·5	49·3
Oct.	31	2	0	129·08	546·2	55·8	739·8	55·6
		5	0	124·95	537·5	55·6	763·8	55·7
		20	0	124·95	544·5	56·7	724·7	57·7
		23	0	127·67	537·2	56·7	735·8	57·6
Nov.	1	2	0	130·47	548·8	60·7	715·5	61·0
		5	0	127·34	548·5	64·2	705·3	63·7
		20	0	126·28	537·9	58·5	716·3	59·7
		23	0	129·50	535·4	57·7	719·1	58·7
Nov.	2	2	0	133·88	541·0	57·7	740·5	58·7
		5	0	130·16	538·5	57·7	769·8	58·7

BIFILAR. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.
BALANCE. April 17^{d}—Oct. 8^{d} $k=0{\cdot}0000130$ $q=0{\cdot}000073=5{\cdot}60$ Micrometer divisions.
„ Oct. 9^{d}—Dec. 31^{d} $k=0{\cdot}0000143$ $q=0{\cdot}000073=5{\cdot}10$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 157°. Oct. 10^{d} 21^{h}, 166°. Oct. 17^{d} 21^{h}, 166°. Oct. 24^{d} 21^{h}, 173°. Oct. 31^{d} 21^{h}, 186°.

Oct. 17^{d}—18^{d}. Extra observations.

Oct. 23^{d}. Anemometer erected.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Nov. 2	20	0	128·60	536·0	51·6	734·2	52·6
	23	0	131·55	538·8	52·4	749·6	53·5
Nov. 3	2	0	135·05	547·6	54·9	753·2	55·0
	5	0	133·57	544·0	57·7	757·7	57·8
	20	0	125·25	537·2	51·1	754·8	51·1
	23	0	128·78	535·3	51·6	765·8	51·6
Nov. 4	2	0	131·18	546·9	55·6	754·3	55·7
	5	0	127·70	545·8	56·3	752·8	56·4
	20	0	127·57	533·8	49·2	759·4	50·6
	23	0	129·01	529·8	50·9	765·7	52·3
Nov. 5	2	0	131·27	542·7	54·5	755·9	55·8
	5	0	127·65	544·2	55·3	760·8	56·8
Nov. 6	20	0	125·60	538·1	42·8	755·3	43·0
	23	0	125·15	526·0	42·7	758·9	42·9
Nov. 7	2	0	129·58	544·1	49·3	765·6	49·7
	5	0	126·82	546·4	53·9	738·8	53·8
	20	0	125·83	542·7	50·3	745·5	51·8
	23	0	126·43	538·1	52·6	750·2	54·4
Nov. 8	2	0	128·40	546·2	56·5	730·4	57·5
	5	0	126·62	548·5	57·1	730·2	58·3
	20	0	125·25	547·5	51·9	731·2	53·4
	23	0	127·23	541·1	52·7	733·6	54·1
Nov. 9	2	0	129·10	546·3	58·7	719·7	60·0
	5	0	125·68	545·6	57·4	730·9	58·4
	20	0	126·02	543·8	48·4	703·7	50·1
	23	0	134·95	521·1	48·5	744·9	50·3
Nov. 10	2	0	138·37	548·4	54·4	776·5	55·4
	5	0	126·97	544·0	55·5	800·9	56·7
	20	0	132·64	521·9	49·4	718·4	50·6
	23	0	126·70	530·3	50·2	755·1	51·3
Nov. 11	2	0	130·52	539·9	57·8	750·0	59·2
	5	0	122·44	539·7	55·9	789·8	57·3
	20	0	126·02	535·2	53·3	749·4	54·9
	23	0	128·08	537·0	52·5	745·8	53·9
Nov. 12	2	0	129·72	541·7	56·4	744·6	57·4
	5	0	127·17	544·3	58·3	744·5	59·4
Nov. 13	20	0	126·45	533·0	41·9	742·4	42·5
	23	0	125·83	535·9	43·5	760·9	43·9
Nov. 14	2	0	128·98	547·3	52·5	743·3	52·2
	5	0	126·66	546·2	54·5	733·5	54·6
	20	0	126·05	531·0	42·6	749·9	44·6
	23	0	125·90	537·4	48·4	754·5	50·8
Nov. 15	2	0	126·15	546·6	53·4	744·2	55·2
	5	0	125·19	548·9	55·8	741·4	57·5
	20	0	125·30	536·1	47·8	744·3	49·8
	23	0	127·81	534·6	48·4	753·1	50·2
Nov. 16	2	0	129·14	535·8	53·3	754·9	55·1
	5	0	127·63	543·2	54·1	766·1	56·0
Nov. 16	20	0	124·17	536·7	49·3	745·5	51·1
	23	0	126·43	534·6	50·5	747·2	52·0
Nov. 17	2	0	128·15	543·6	55·0	742·7	56·3
	5	0	125·62	547·3	56·7	742·9	58·1
	20	0	125·17	530·8	46·8	726·9	48·1
	23	0	126·28	532·6	48·8	751·5	50·2
Nov. 18	2	0	127·50	545·3	55·3	741·6	56·3
	5	0	125·65	548·5	56·2	734·9	57·3
	20	0	125·20	541·2	47·4	742·8	49·1
	23	0	127·68	535·2	48·9	747·6	50·4
Nov. 19	2	0	129·14	545·8	51·9	751·7	52·9
	5	0	126·88	549·4	57·8	727·6	58·5
Nov. 20	20	0	127·94	539·4	39·4	730·9	40·0
	23	0	128·98	528·8	41·0	747·6	41·9
Nov. 21	2	0	130·72	548·6	47·4	763·3	47·6
	5	0	127·63	542·2	51·5	752·8	51·9
	20	0	134·82	500·2	43·4	647·5	45·1
	23	0	133·47	532·1	47·7	747·6	49·4
Nov. 22	2	0	133·57	528·7	50·8	807·0	52·3
	5	0	127·03	539·6	51·9	828·8	53·6
	20	0	128·34	537·7	45·2	710·7	47·3
	23	0	130·98	508·1	43·0	761·1	45·0
Nov. 23	2	0	129·95	533·9	43·1	752·7	44·6
	5	0	125·72	531·9	43·7	769·5	44·2
	20	0	125·95	530·1	35·2	760·6	35·9
	23	0	128·07	527·6	36·7	758·6	36·4
Nov. 24	2	0	127·92	528·3	37·6	762·3	37·5
	5	0	123·64	519·5	38·9	792·3	38·5
	20	0	125·97	538·0	40·5	742·5	40·3
	23	0	125·79	534·0	41·1	745·5	40·9
Nov. 25	2	0	129·80	532·9	42·1	747·1	41·8
	5	0	126·12	537·6	42·7	754·3	42·5
	20	0	127·57	548·5	56·3	712·5	57·9
	23	0	129·90	543·6	57·5	722·0	59·2
Nov. 26	2	0	131·23	546·5	56·9	728·1	58·9
	5	0	128·90	549·5	59·6	719·3	61·3
Nov. 27	20	0	127·08	539·0	42·0	740·0	42·3
	23	0	127·61	542·8	48·6	737·3	48·6
Nov. 28	2	0	129·30	550·9	55·3	716·1	55·2
	5	0	127·48	554·9	57·0	707·8	57·4
	20	0	127·17	549·2	52·9	714·1	55·2
	23	0	123·85	552·3	57·8	719·2	57·9
Nov. 29	2	0	130·33	546·5	57·4	717·5	58·8
	5	0	123·78	553·4	57·5	720·4	59·1
	20	0	122·67	541·4	47·8	706·9	49·3
	23	0	....	......	......	......	......
Dec. 3	2	0	....	......	......	......	......
	5	0	123·22	549·2	51·3	710·3	50·6

BIFILAR. $k=0{\cdot}0001248$ $q=0{\cdot}000304=2{\cdot}44$ Scale divisions.

BALANCE. $k=0{\cdot}0000143$ $q=0{\cdot}000073=5{\cdot}10$ Micrometer divisions.

DECLINATION. Torsion removed. Circle reading 186°. Nov. 7^{d} 21^{h}, 200°. Nov. 11^{d} 6^{h}, 150°. (See note below.) Nov. 14^{d} 21^{h}, 165°. Nov. 28^{d} 21^{h}, 172°.

Nov. 3^{d} 8^{h}; 5^{d} 4^{h}; 9^{d}—10^{d}; 19^{d} 6^{h}; 21^{d}—22^{d}. Extra observations.

Nov. 11^{d} 6^{h}. On removing the Declination magnet, in order to make the Dip observation, the suspension cylinder was not held sufficiently hard down, so that the fibres became loose. The torsion was removed.

Nov. 29^{d} 23^{h}—Dec. 3^{d} 2^{h}. Observer in Edinburgh on business connected with the observatory.

DAILY OBSERVATIONS OF MAGNETOMETERS, DECEMBER 4—31. 1842.

Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.		Göttingen Mean Time of Declination Observation.			DECLINATION.	BIFILAR.		BALANCE.	
				Corrected.	Thermometer.	Corrected.	Thermometer.					Corrected.	Thermometer.	Corrected.	Thermometer.
d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°	d.	h.	m.	′	Sc. Div.	°	Mic. Div.	°
Dec. 4	20	0	122·70	547·1	48·8	710·5	48·8	Dec. 18	20	0	123·87	538·0	43·4	726·6	43·9
	23	0	123·07	545·9	52·9	706·2	52·4		23	0	125·79	539·5	46·4	734·7	46·7
Dec. 5	2	0	124·42	553·0	57·5	693·1	57·3	Dec. 19	2	0	127·83	552·0	53·8	710·1	53·6
	5	0	124·83	553·5	57·1	697·6	57·3		5	0	126·00	547·8	56·4	711·3	56·7
	20	0	129·55	534·5	52·8	711·4	54·1		20	0	124·24	547·8	54·3	705·6	55·4
	23	0	124·82	542·0	54·3	709·5	55·4		23	0	126·08	545·3	54·4	706·5	55·5
Dec. 6	2	0	127·52	539·8	55·0	723·3	55·9	Dec. 20	2	0	127·17	546·1	56·4	712·1	57·3
	5	0	124·25	546·7	54·4	726·7	55·1		5	0	125·70	550·1	57·1	705·2	58·3
	20	0	125·75	541·4	51·3	695·4	52·1		20	0	124·46	551·5	58·6	683·0	60·0
	23	0	125·55	536·8	50·1	705·0	50·8		23	0	125·20	547·5	56·8	686·3	58·3
Dec. 7	2	0	128·28	542·4	49·5	717·7	50·0	Dec. 21	2	0	127·47	551·0	56·0	697·6	57·4
	5	0	129·03	531·0	49·0	753·0	49·4		5	0	126·17	553·9	61·6	687·9	63·3
	20	0	124·60	543·0	46·7	716·1	46·8		20	0	126·90	548·9	59·9	692·6	62·2
	23	0	124·66	535·5	47·1	720·2	46·9		23	0	129·52	547·5	58·7	673·4	60·3
Dec. 8	2	0	128·27	539·1	48·7	736·8	48·0	Dec. 22	2	0	129·03	548·3	58·4	701·4	59·8
	5	0	118·83	544·2	53·9	701·7	53·6		5	0	128·27	548·4	58·8	709·0	60·7
	20	0	125·45	549·8	52·2	707·9	53·2		20	0	126·02	544·0	52·9	707·5	55·4
	23	0	125·93	541·5	53·4	715·5	54·3		23	0	128·92	540·4	53·0	722·8	55·7
Dec. 9	2	0	127·54	542·9	53·8	712·8	54·7	Dec. 23	2	0	129·72	547·5	55·3	709·6	57·5
	5	0	125·95	539·4	56·3	755·1	57·3		5	0	127·40	544·8	57·2	714·8	59·7
	20	0	123·93	542·8	53·0	728·5	54·3		20	0	126·12	538·2	46·4	734·4	48·6
	23	0	124·42	534·1	51·6	731·7	52·6		23	0	126·97	544·9	49·8	728·0	52·2
Dec. 10	2	0	126·42	544·4	54·0	738·0	55·4	Dec. 24	2	0	126·33	551·0	52·5	714·9	54·0
	5	0	124·30	545·5	55·3	729·6	56·3		5	0	124·88	545·9	50·9	721·4	52·4
Dec. 11	20	0	123·20	540·1	44·9	737·6	45·8	Dec. 25	20	0	124·27	547·0	47·8	700·7	47·6
	23	0	124·82	542·1	49·0	739·6	49·1		23	0	126·43	545·9	49·4	709·0	49·1
Dec. 12	2	0	125·55	548·3	54·4	715·8	54·1	Dec. 26	2	0	126·80	548·9	54·8	687·6	54·3
	5	0	124·00	552·2	56·3	701·2	56·1		5	0	124·39	550·3	55·2	695·4	55·7
	20	0	123·18	549·2	57·6	696·0	58·2		20	0	124·55	539·2	45·7	705·8	47·9
	23	0	125·75	545·2	57·4	695·6	58·0		23	0	125·59	548·5	51·0	710·2	53·2
Dec. 13	2	0	127·03	650·7	57·3	693·2	57·7	Dec. 27	2	0	127·17	553·2	52·8	709·1	54·2
	5	0	125·08	557·2	58·8	700·7	59·7		5	0	126·28	552·5	53·9	702·3	55·4
	20	0	125·95	545·1	60·4	688·4	62·2		20	0	124·32	541·0	45·5	717·3	47·9
	23	0	125·72	537·9	57·9	695·4	59·2		23	0	125·49	545·2	48·8	726·0	51·1
Dec. 14	2	0	128·07	543·9	56·5	699·3	57·7	Dec. 28	2	0	126·90	555·1	53·6	707·7	55·1
	5	0	124·55	543·8	54·9	705·5	55·9		5	0	125·73	549·2	54·6	699·0	56·0
	20	0	124·70	543·3	52·6	708·0	52·4		20	0	123·97	546·8	53·3	698·1	54·5
	23	0	125·37	541·2	52·9	712·3	52·6		23	0	125·60	542·6	53·4	708·0	54·4
Dec. 15	2	0	127·50	547·5	54·0	722·6	53·9	Dec. 29	2	0	127·23	547·6	54·3	714·8	55·1
	5	0	125·08	552·3	58·4	704·3	58·3		5	0	125·20	553·2	59·4	687·5	60·3
	20	0	124·13	545·4	56·8	699·2	57·9		20	0	124·37	547·8	58·0	677·2	59·5
	23	0	125·72	537·8	55·5	697·5	56·5		23	0	125·42	548·1	58·1	693·8	59·3
Dec. 16	2	0	126·95	547·9	57·5	708·2	58·3	Dec. 30	2	0	131·76	546·2	61·9	696·3	62·8
	5	0	124·86	549·3	58·7	703·9	59·7		5	0	127·74	535·1	61·6	706·1	62·8
Dec. 16	20	0	124·32	541·9	55·9	700·6	57·9		20	0	125·79	550·2	58·3	676·1	59·2
	23	0	125·82	543·3	53·8	721·7	55·8		23	0	128·10	545·8	58·9	693·4	59·9
Dec. 17	2	0	126·55	550·7	56·5	711·5	58·2	Dec. 31	2	0	129·32	549·4	59·6	685·7	60·6
	5	0	125·35	549·4	57·8	711·0	59·9		5	0	126·98	548·7	59·4	694·1	61·2

BIFILAR. $k = 0{\cdot}0001248$ $q = 0{\cdot}000304 = 2{\cdot}44$ Scale divisions.
BALANCE. $k = 0{\cdot}0000143$ $q = 0{\cdot}000073 = 5{\cdot}10$ Micrometer divisions.
DECLINATION. Torsion removed. Circle reading 172°. Dec. 5^d 21^h, 172°. Dec. 12^d 21^h, 165°. Dec. 19^d 21^h, 168°.

Dec. 5^d 20^h; 9^d 5^h; 17^d 4^h. Extra observations.

TERM-DAY OBSERVATIONS

OF

MAGNETOMETERS.

1841 AND 1842.

Göttingen Mean Time of Declination Observation.	JULY 21, 22.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10^{h}.			14^{h}.			18^{h}.			22^{h}.	
0	129·80	497·8		130·23	487·6		124·95	481·0		136·41	456·2	
5	……		……	130·47		777·7	126·60		696·7	135·23		738·3
10	……	492·9		129·90	489·4		126·98	475·0		134·33	460·8	
15	129·52		784·3	130·00		777·2	127·54		695·6	133·72		735·7
20	130·09	494·7		131·20	486·4		128·38	475·4		133·57	461·8	
25	130·35		782·1	132·91		774·4	129·52		695·9	132·84		736·1
30	130·03	494·2		……	481·0		130·40	474·0		131·95	462·4	
35	129·98		781·5	133·28		774·6	131·73		696·8	131·25		735·8
40	129·35	491·2		134·39	482·7		131·17	469·6		130·36	466·1	
45	128·76		781·6	135·12		768·2	131·22		700·3	130·18		730·1
50	128·65	490·1		135·42	481·3		131·55	466·5		130·18	466·6	
55	128·56		780·0	135·62		760·8	131·57		703·4	129·09		733·9
		11^{h}.			15^{h}.			19^{h}.			23^{h}.	
0	128·85	490·6		134·86	474·9		132·80	459·9		129·47	466·5	
5	129·09		778·8	135·30		751·9	132·25		707·3	127·95		734·1
10	129·29	493·0		136·20	474·7		130·42	462·6		128·98	466·3	
15	130·43		779·7	137·41		747·1	128·50		708·7	128·27		733·8
20	130·60	491·9		138·37	464·0		127·80	460·1		128·96	473·0	
25	131·18		779·4	137·61		728·8	127·94		713·6	129·15		735·7
30	130·55	490·5		137·21	448·2		128·05	462·1		129·23	471·7	
35	130·05		779·9	137·20		713·3	126·63		716·2	129·50		737·6
40	129·76	490·9		137·23	444·4		127·70	463·7		129·78	474·1	
45	129·20		780·4	139·07		703·3	129·18		718·2	130·35		739·0
50	129·18	491·1		142·77	440·8		130·43	464·0		130·13	474·8	
55	129·29		781·4	145·59		705·3	130·07		719·7	130·76		740·1
		12^{h}.			16^{h}.			20^{h}.			0^{h}.	
0	129·09	490·9		146·83	459·0		129·13	471·3		130·72	473·9	
5	129·12		783·2	146·80		702·1	130·07		724·2	130·83		747·5
10	129·15	491·7		145·23	473·8		128·75	468·4		131·27	476·0	
15	129·50		781·6	143·27		695·3	130·72		725·9	131·42		742·3
20	129·29	491·2		141·47	475·8		132·48	468·6		131·80	477·9	
25	129·12		780·9	139·67		690·6	133·33		727·4	131·95		741·8
30	129·25	490·9		137·41	474·0		133·37	467·8		132·57	479·9	
35	129·12		780·3	134·50		686·3	134·03		728·1	133·22		742·1
40	129·25	490·6		132·45	475·3		133·60	461·3		133·00	483·0	
45	129·35		779·6	130·92		684·6	130·56		729·9	133·95		741·9
50	129·52	492·5		130·03	479·1		129·78	457·3		134·15	483·9	
55	130·05		778·9	129·78		686·1	130·69		730·5	133·85		741·7
		13^{h}.			17^{h}.			21^{h}.			1^{h}.	
0	130·35	491·6		129·07	481·2		129·78	447·3		134·10	484·9	
5	129·67		778·2	127·98		687·3	129·27		735·2	134·17		744·8
10	129·78	490·4		127·92	480·1		131·91	443·2		134·00	478·8	
15	129·58		778·1	126·52		686·3	130·76		736·0	134·03		745·3
20	129·29	488·7		126·05	485·4		132·08	444·0		133·93	475·6	
25	128·92		778·0	126·52		686·9	132·13		735·8	134·22		745·8
30	128·52	488·5		125·52	477·2		131·97	453·2		134·02	478·0	
35	129·42		778·0	125·97		688·4	131·30		736·4	134·28		745·2
40	129·38	488·6		125·88	474·9		132·60	448·2		134·20	478·3	
45	129·55		778·0	126·00		694·2	132·04		738·1	133·93		746·1
50	129·67	488·2		126·67	472·9		133·73	451·3		134·23	476·7	
55	129·82		778·0	126·25		697·3	136·57		738·2	133·97		746·7

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	62·3	62·4	62·7	62·5	62·3	61·8	61·1	60·6	59·9	59·4	59·3	59·1	58·9	58·6	58·6	58·7
BALANCE THERMOMETER, .	62·7	62·2	63·0	62·3	62·2	62·2	61·9	61·2	60·7	59·9	59·7	59·9	59·7	59·2	58·7	59·0

During the Terms of 1841, the Bifilar and Balance Magnetometers were observed 2^{m} 30^{s} *after* the corresponding minutes of Declination observation.

July 21^{d}—22^{d}, 1841. The Bifilar and Balance magnets, during this term, had their N. poles E. and W. respectively; the opposite direction to that which they afterwards occupied. Increasing readings, however, still indicate increasing force; the Bifilar readings having been subtracted from a constant quantity.

Göttingen Mean Time of Declination Observation.	JULY 21, 22.						AUGUST 27, 28.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^{h}.			6^{h}.			10^{h}.			14^{h}.	
0	133·47	475·9		130·43	499·2		133·24	555·6		126·14	552·6	
5	134·22		749·4	131·25		765·1	132·44		734·1	124·86		570·2
10	134·00	476·6		130·69	499·7		130·42	555·4		123·15	566·8	
15	134·10		748·2	130·70		766·4	129·50		732·6	123·02		577·9
20	133·90	482·2		130·47	498·4		129·09	555·7		122·30	560·3	
25	134·08		748·2	130·56		769·3	128·50		723·7	122·15		598·4
30	134·33	486·1		130·32	497·6		126·80	555·6		122·60	562·2	
35	133·75		749·9	129·87		770·0	125·42		708·0	122·84		595·9
40	133·70	481·8		129·83	496·4		128·65	561·0		123·95	561·5	
45	133·77		749·8	129·62		771·6	131·85		673·0	123·92		603·0
50	133·63	485·8		129·63	499·6		132·93	538·6		124·15	561·5	
55	133·58		751·1	129·23		774·0	130·50		669·5	124·08		611·8
		3^{h}.			7^{h}.			11^{h}.			15^{h}.	
0	133·63	481·9		128·92	498·8		125·87	534·9		122·87	560·1	
5	133·20		751·7	129·22		773·1	121·42		679·6	123·79		621·6
10	132·88	481·9		128·60	499·9		121·18	546·4		122·88	556·5	
15	133·00		754·3	128·63		773·0	123·07		682·6	123·52		626·8
20	133·04	482·8		128·21	502·0		125·52	546·1		123·48	555·8	
25	133·07		755·6	128·82		774·2	126·90		685·1	125·02		637·4
30	133·13	487·4		128·90	499·3		129·45	555·2		126·23	553·2	
35	132·64		756·6	129·00		773·8	132·35		677·7	126·20		645·7
40	132·02	486·8		129·27	500·7		132·30	554·4		126·94	553·5	
45	132·68		755·6	129·42		774·1	131·88		670·2	128·32		650·7
50	132·77	490·0		129·92	500·3		132·18	551·8		128·80	551·7	
55	132·64		756·3	130·52		776·0	131·53		669·7	129·18		656·2
		4^{h}.			8^{h}.			12^{h}.			16^{h}.	
0	132·57	490·6		130·43	498·8		130·47	552·6		129·33	554·3	
5	132·42		759·3	130·67		767·7	130·25		664·7	130·20		656·8
10	132·24	488·6		130·62	498·8		129·92	547·3		129·35	555·9	
15	131·97		759·4	130·63		767·3	129·69		660·5	129·83		656·3
20	132·37	489·0		130·42	499·2		129·58	543·4		127·78	557·1	
25	131·91		758·2	131·08		767·7	130·75		649·8	128·10		656·1
30	131·91	491·5		130·56	501·0		135·53	542·7		126·95	556·5	
35	131·87		758·4	130·20		765·3	136·45		588·6	129·30		663·9
40	131·71	494·8		130·13	497·1		130·09	561·7		129·87	554·1	
45	131·90		758·3	129·95		774·6	131·08		447·0	129·49		663·9
50	131·91	495·1		129·60	495·3		137·15	551·0		130·52	553·3	
55	131·97		758·4	129·20		775·8	142·31		433·6	128·80		668·6
		5^{h}.			9^{h}.			13^{h}.			17^{h}.	
0	131·33	497·4		129·13	495·6		141·13	539·6		130·69	554·0	
5	131·18		759·7	128·87		776·9	139·09		454·1	131·02		671·2
10	130·87	497·1		128·50	499·0		134·03	550·4		130·87	553·7	
15	131·17		760·3	128·47		777·4	137·80		477·9	132·25		670·7
20	131·13	497·1		128·17	498·3		141·71	548·6		133·30	546·8	
25	130·87		759·9	128·12		779·5	142·45		464·0	134·99		676·3
30	131·08	497·9		128·15	493·4		141·45	538·5		135·55	536·3	
35	130·70		762·3	128·10		779·2	138·67		500·0	135·08		676·5
40	130·65	494·8		128·03	491·3		136·30	546·7		135·45	534·8	
45	130·53		761·9	128·40		778·8	133·42		524·5	136·23		676·5
50	130·73	496·0		128·58	491·4		131·15	549·3		136·30	541·7	
55	130·67		764·0	128·55		777·9	128·10		560·5	137·67		679·2

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	58·9	59·5	59·9	59·9	60·0	60·2	59·8	59·6		64·6	64·4	64.4	64.3	64·6	63·7	63·7	63·7
BALANCE THERMOMETER,	59·6	59·7	60·2	60·2	60·7	60·6	59·8	60·3		65·6	65·8	65·8	65·8	65·8	65·5	65·5	65·6

Göttingen Mean Time of Declination Observation.	AUGUST 27, 28.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18h.			22h.			2h.			6h.	
0	138·61	543·7		135·85	539·5		147·63	554·8		138·30	563·6	
5	138·75		671·7	136·32		711·4	147·47		706·9	138·70		727·4
10	139·76	542·5		136·50	538·4		146·97	558·6		138·55	566·1	
15	140·85		662·3	137·14		702·8	146·87		704·2	138·57		732·3
20	141·27	536·8		137·77	537·1		146·40	560·6		136·88	571·6	
25	140·56		651·1	138·58		704·5	146·48		699·5	135·05		744·0
30	140·38	542·7		138·18	533·1		146·57	562·0		131·80	570·1	
35	142·27		656·5	138·89		708·4	145·77		701·2	129·72		753·6
40	142·65	542 7		139·35	527·3		145·17	555·0		130·13	573·4	
45	142·40		659·2	140·23		713·8	145·08		700·8	130·76		762·8
50	140·05	549·8		140·92	523·8		145·32	559·1		130·16	570·2	
55	139·95		657·3	141·75		717·0	145·22		……	128·89		773·7
		19h.			23h.			3h.			7h.	
0	139·27	550·0		141·78	523·9		145·19	555·0		128·28	566·7	
5	138·80		662·8	141·50		713·7	144·25		708·2	128·95		773·1
10	137·75	552·3		141·48	525·8		143·33	559·4		127·15	572·3	
15	138·58		661·5	141·60		711·4	142·38		709·9	129·62		762·9
20	140·36	555·1		139·82	525·9		142·30	563·9		135·05	568·7	
25	140·98		661·6	140·56		711·5	142·33		713·7	136·67		764·8
30	140·70	554·6		141·33	533·4		142·31	558·5		136·12	560·0	
35	139·16		660·2	140·76		716·6	141·60		713·4	135·00		760·0
40	137·90	553·0		142·57	534·8		141·22	563·6		135·88	557·2	
45	136·35		663·9	144·08		718·5	141·18		708·8	135·12		761·4
50	135·68	547·1		144·30	539·4		141·18	565·3		134·50	559·6	
55	136·32		673·3	144·19		718·8	141·51		707·1	134·77		756·2
		20h.			0h.			4h.			8h.	
0	137·18	545·4		144·77	544·6		141·84	570·9		134·90	561·2	
5	138·01		676·4	144·33		721·0	141·98		710·5	134·03		758·0
10	137·88	545·2		144·42	547·5		142·18	563·9		133·30	562·9	
15	136·63		679·5	145·85		718·6	142·65		712·3	133·72		758·4
20	136·38	546·3		146·77	546·5		142·38	553·4		133·68	559·7	
25	136·85		683·3	145·72		716·3	142·07		706·8	134·22		758·6
30	136·37	544·4		144·63	549·9		141·82	556·4		133·10	554·5	
35	135·77		688·6	144·95		706·0	141·57		698·5	132·31		752·1
40	136·13	541·8		145·72	552·1		140·98	562·5		133·31	559·8	
45	137·27		692·8	145·92		701·5	140·83		695·9	133·95		748·4
50	137·94	547·4		145·37	551·6		140·56	561·4		134·20	558·5	
55	137·57		695·1	146·25		696·5	140·20		691·5	133·83		748·0
		21h.			1h.			5h.			9h.	
0	137·17	544·9		146·35	556·3		139·72	563·4		134·68	556·6	
5	136·08		695·5	147·40		696·3	139·72		692·0	135·68		746·8
10	135·42	541·3		146·92	555·6		139·72	565·0		136·15	557·1	
15	134·42		696·5	147·43		700·3	139·63		697·9	135·75		739·8
20	135·82	543·7		147·03	556·3		139·38	561·7		135·77	555·5	
25	135·85		697·1	147·03		701·5	139·10		701·6	135·06		737·2
30	136·02	543·2		147·03	558·3		139·29	563·3		134·08	555·9	
35	136·78		700·0	148·25		709·2	139·13		713·5	133·88		734·2
40	137·34	543·1		148·12	548·8		139·13	565·3		133·60	555·6	
45	137·01		703·7	147·65		713·2	139·23		708·1	133·55		734·2
50	136·12	540·1		147·45	550·6		139·23	563·6		133·00	554·7	
55	136·34		705·7	147·61		711·3	139·00		708·6	133·00		733·1

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	63·6	63·3	63·0	63·1	63·7	64·5	65·4	66·4	67·7	68·7	69·6	69·8	70·3	70·2	69·5	69·0	68·6
BALANCE THERMOMETER,	65·6	64·7	63·8	64·3	64·3	65·0	66·0	66·4	67·4	68·0	68·8	67·8	68·0	67·8	68·7	68·8	68·8

Göttingen Mean Time of Declination Observation.	SEPTEMBER 22, 23.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10^{h}.			14^{h}.			18^{h}.			22^{h}.	
0	129·73	542·6		135·68	536·5		133·40	536·3		134·26	519·6	
5	129·73		597·4	135·68		649·5	133·28		656·9	134·82		647·3
10	130·92	535·4		135·40	535·9		133·45	535·8		135·02	521·4	
15	131·08		599·3	135·28		650·0	133·48		656·9	135·72		645·3
20	128·37	530·7		134·82	535·6		133·77	535·0		136·08	519·4	
25	126·17		601·2	134·13		649·4	133·88		658·6	136·55		645·8
30	127·03	535·4		134·95	535·0		133·73	535·0		136·34	519·4	
35	128·55		608·2	134·23		650·0	133·47		659·0	136·65		647·8
40	129·58	532·1		134·06	536·0		135·46	532·9		137·03	515·7	
45	130·20		614·2	134·03		651·0	133·30		659·9	137·08		647·6
50	130·85	531·2		134·20	536·2		133·24	537·6		136·95	515·2	
55	131·08		621·6	134·00		649·8	133·66		661·4	137·34		646·4
		11^{h}.			15^{h}.			19^{h}.			23^{h}.	
0	131·47	531·1		133·73	535·6		133·75	534·4		137·28	515·0	
5	132·25		628·9	133·47		649·1	133·22		661·6	137·43		648·4
10	132·55	532·4		133·04	534·2		132·80	535·6		137·83	516·9	
15	133·18		634·1	132·85		649·2	132·93		658·0	138·10		647·5
20	133·82	533·2		132·77	534·2		132·98	534·8		138·35	518·2	
25	133·95		635·7	133·00		657·0	133·08		656·5	139·18		649·7
30	134·23	533·4		133·22	534·9		132·97	534·2		138·63	517·7	
35	137·41		638·3	132·98		658·2	132·97		654·8	139·30		647·8
40	133·73	535·0		133·20	534·5		133·08	534·8		139·10	520·2	
45	134·05		639·9	133·33		657·9	133·79		656·0	139·27		647·1
50	134·33	533·8		133·65	535·9		131·77	533·6		139·35	520·8	
55	134·86		643·5	133·65		655·2	132·62		653·9	139·83		645·8
		12^{h}.			16^{h}.			20^{h}.			0^{h}.	
0	134·63	533·6		134·62	533·5		132·02	532·9		139·72	519·8	
5	134·43		645·7	133·30		656·8	132·93		653·3	139·95		645·5
10	134·72	535·1		132·64	534·4		132·87	531·8		140·65	522·1	
15	135·02		646·4	132·38		657·0	132·67		654·9	141·32		643·0
20	134·60	536·8		132·40	533·6		132·38	529·9		141·23	522·3	
25	134·73		645·7	132·20		659·8	132·20		653·2	141·03		642·2
30	134·73	538·3		134·32	533·7		131·95	530·0		141·03	525·2	
35	134·77		649·7	134·59		659·5	133·20		652·9	141·18		641·3
40	134·57	537·2		134·55	534·6		133·51	529·1		141·07	523·7	
45	134·42		644·1	134·40		659·5	133·45		654·3	141·38		641·4
50	134·45	537·2		133·93	533·1		133·44	526·8		139·98	521·7	
55	134·19		647·4	133·73		659·7	133·02		653·8	140·87		643·6
		13^{h}.			17^{h}.			21^{h}.			1^{h}.	
0	134·23	536·6		133·83	534·4		133·90	524·9		141·00	522·9	
5	134·05		649·7	134·72		659·2	132·88		653·4	140·83		645·3
10	134·17	536·2		134·73	533·9		132·30	524·5		140·95	524·3	
15	134·20		648·6	134·46		659·4	132·62		652·8	141·12		643·4
20	134·28	537·1		134·65	534·7		132·57	524·7		141·45	526·4	
25	134·70		646·0	134·86		660·2	133·40		653·8	141·67		645·8
30	135·02	537·2		134·62	534·2		133·77	521·7		141·57	526·4	
35	135·35		649·1	133·75		658·0	134·46		654·9	141·55		644·6
40	135·05	535·3		133·53	535·5		134·62	520·5		141·57	528·2	
45	135·05		651·8	133·58		657·6	134·20		655·8	141·50		645·3
50	135·53	535·7		133·70	537·4		134·62	519·4		141·38	528·7	
55	135·68		650·3	133·83		655·6	134·57		654·0	141·29		645·2

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, . .	60.4?	60·4	60·2	62·3	61·8	61·6	61·6	61·4	61.7	62·4	62·4	61·6	60·9	60·6	60·6	60·6
BALANCE THERMOMETER, .	60.3?	60·3	60·3	61·8	61·7	61·7	61·7	61·2	61·7	62·4	62·3	61·5	60·9	60·7	60·7	60·7

Göttingen Mean Time of Declination Observation.	SEPTEMBER 22, 23.						OCTOBER 20, 21.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^{h}.			6^{h}.			10^{h}.			14^{h}.	
0	141·29	529·0		137·75	542·4		128·30	508·6		117·61	491·8	
5	141·25		645·1	138·08		645·9	128·30		666·1	117·61		572·1
10	141·15	530·1		138·18	550·7		128·23	509·3		117·15	487·2	
15	141·15		645·7	137·78		646·1	128·10		665·4	117·60		570·3
20	141·18	529·3		137·52	549·2		128·07	510·5		122·22	476·2	
25	140·92		645·2	137·48		653·5	128·14		664·9	124·70		554·1
30	140·76	530·1		137·98	537·5		128·14	509·8		129·55	453·4	
35	140·93		647·5	138·07		653·6	127·88		663·2	133·22		507·2
40	141·20	533·8		138·07	535·2		128·03	509·9		135·86	459·3	
45	141·13		649·2	138·14		656·4	127·77		658·2	135·63		490·7
50	141·60	536·5		138·23	534·9		127·55	509·6		133·95	478·4	
55	141·64		650·6	138·08		658·3	127·30		659·7	132·20		501·0
		3^{h}.			7^{h}.			11^{h}.			15^{h}.	
0	141·32	533·7		138·25	536·4		127·03	506·8		131·17	488·9	
5	141·50		654·2	138·28		661·0	126·28		653·3	130·35		498·4
10	140·32	535·4		138·25	539·6		125·75	505·8		128·93	495·6	
15	141·22		654·9	138·23		663·0	125·94		652·5	127·72		511·4
20	141·12	537·9		138·01	539·2		125·98	504·0		126·47	505·8	
25	141·18		654·0	138·07		663·0	125·77		652·7	125·57		519·8
30	141·09	539·4		137·67	538·2		125·52	504·0		125·26	506·0	
35	140·89		653·5	137·80		664·6	125·02		651·8	124·22		530·8
40	140·87	539·6		137·60	538·8		125·20	504·5		123·65	508·9	
45	140·60		655·9	137·57		665·5	125·78		639·7	122·73		537·2
50	139·82	535·7		137·45	539·0		126·27	539·0		120·70	507·8	
55	139·72		656·3	137·52		667·6	129·49		601·7	119·89		540·4
		4^{h}.			8^{h}.			12^{h}.			16^{h}.	
0	·········	532·9		137·74	540·6		131·87	534·1		118·45	507·4	
5	139·45		654·0	138·17		666·7	131·44		565·7	117·58		538·6
10	139·07	534·3		138·23	538·9		129·27	523·2		116·21	508·4	
15	138·78		652·6	138·21		666·5	128·53		563·2	113·97		527·2
20	138·67	533·8		138·17	539·6		127·72	513·6		113·02	516·4	
25	138·40		651·1	138·01		667·1	125·39		565·4	112·66		542·9
30	138·37	536·7		137·98	539·5		122·42	512·4		113·63	515·4	
35	138·30		649·4	137·70		664·4	120·22		563·3	114·77		554·6
40	138·12	536·6		137·83	539·4		119·73	512·0		114·01	512·4	
45	137·92		649·7	137·58		665·8	118·96		560·0	118·43		562·4
50	137·78	536·9		137·63	538·9		117·32	503·1		119·22	508·1	
55	138·08		648·7	137·30		665·4	115·74		564·1	121·55		560·5
		5^{h}.			9^{h}.			13^{h}.			17^{h}.	
0	137·88	540·5		137·57	536·8		115·05	499·9		120·38	510·0	
5	137·75		649·4	137·81		666·2	116·30		570·1	120·52		549·9
10	137·72	539·3		137·28	539·2		117·70	488·4		120·23	503·3	
15	137·88		649·0	137·37		666·6	116·77		579·3	118·76		538·5
20	137·48	539·2		137·15	538·6		114·90	494·4		117·14	497·7	
25	137·18		650·4	137·14		665·5	114·97		577·8	118·00		536·5
30	137·50	538·8		137·17	538·2		116·48	500·3		119·22	486·9	
35	137·57		647·4	137·85		665·7	118·01		572·1	121·07		536·8
40	137·63	542·3		137·74	538·2		118·45	497·2		121·33	483·4	
45	137·52		648·0	137·83		665·5	117·05		566·3	121·97		534·2
50	137·55	542·0		137·77	538·7		116·95	493·1		120·75	483·4	
55	137·60		647·0	137·70		667·0	117·75		570·4	122·53		······

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	60·8	60·9	62·4	63·5	63·5	62·7	62·5	62·0	61·6	52·4	54·0	55·0	53·8	53·2	52·8	52·4	51·2
BALANCE THERMOMETER,	60·9	61·0	62·0	63·0	62·5	62·7	62·7	62·7	62·3	51·6	52·8	54·1	53·6	53·2	53·0	52·8	51·8

Göttingen Mean Time of Declination Observation.	October, 20, 21.											
	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18^{h}.			22^{h}.			2^{h}.			6^{h}.	
0	122·51	476·1		126·81	488·7		129·15	498·8		122·00	508·8	
5	122·64		530·6	127·77		605·7	129·23		767·7	122·60		696·3
10	122·38	473·7		128·82	485·9		130·38	501·3		123·43	512·1	
15	123·63		522·9	129·38		606·8	131·27		767·6	124·99		693·6
20	120·58	480·4		128·20	486·8		131·45	498.9		124·45	489·4	
25	121·90		549·5	129·00		604·8	133·60		757·5	111·95		694·7
30	123·93	482·8		128·63	486·3		131·87	494·3		108·62	508·8	
35	127·60		533·0	128·75		606·3	132·58		747·8	106·08		698·5
40	130·33	489·4		129·75	487·6		131·73	500·0		96·85	524·2	
45	132·70		505·1	130·82		610·3	132·08		739·2	100·00		679·0
50	133·88	499·2		130·16	485·1		131·48	507·0		105·24	510·4	
55	133·37		489·1	129·42		612·5	132·93		727·7	103·29		683·4
		19^{h}.			23^{h}.			3^{h}.			7^{h}.	
0	135·15	502·9		132·50	490·7		133·27	513·3		104·18	502·1	
5	134·02		479·9	132·95		616·9	133·31		722·1	106·57		683·7
10	133·04	507·6		132·37	484·8		134·83	516·8		107·54	491·1	
15	131·33		475·6	132·88		623·9	136·94		714·8	106·68		696·1
20	129·82	510·2		133·02	484·8		137·03	515·2		109·45	504·8	
25	130·16		472·7	136·50		625·2	135·60		720·2	113·38		687·7
30	128·37	506·9		136·92	493·5		135·82	522·4		117·30	500·3	
35	129·27		484·8	137·40		627·8	137·35		723·6	117·14		669·3
40	128·76	498·2		138·28	484·9		139·53	518·1		112·20	502·4	
45	129·02		498·9	136·15		631·7	139·70		728·4	113·43		658·4
50	130·18	495·4		134·48	478·4		137·38	503·5		114·22	498·1	
55	129·18		506·1	134·48		632·5	137·80		731·9	111·09		668·8
		20^{h}.			0^{h}.			4^{h}.			8^{h}.	
0	125·94	498·8		133·48	478·2		139·00	495·7		116·57	505·0	
5	127·17		519·2	134·32		628·7	136·05		773·7	119·49		654·1
10	125·46	494·9		135·48	479·6		131·62	496·2		122·15	496·1	
15	125·25		531·5	135·50		629·1	119·73		775·8	123·04		657·2
20	124·73	496·6		135·12	487·9		111·62	540·9		123·11	491·2	
25	124·57		544·0	135·45		628·5	118·98		747·8	122·30		662·2
30	124·08	500·2		135·88	494·3		124·00	527·0		122·24	496·3	
35	125·42		559·2	136·37		634·7	127·35		725·6	122·67		663·3
40	124·82	494·5		137·10	500·0		130·23	509·1		123·83	500·2	
45	125·22		565·6	136·47		642·3	130·30		698·9	125·83		663·8
50	126·03	505·7		137·28	501·4		130·30	502·7		127·52	498·3	
55	127·03		572·0	137·60		644·9	130·63		680·3	127·45		662·3
		21^{h}.			1^{h}.			5^{h}.			9^{h}.	
0	126·52	497·7		138·35	496·4		130·80	514·2		127·65	497·6	
5	126·60		574·6	138·20		652·4	130·67		672·4	128·30		664·5
10	127·07	494·9		138·78	491·6		130·96	517·8		128·30	496·5	
15	127·80		580·2	139·09		663·3	130·72		676·3	128·85		663·4
20	128·70	490·8		139·25	474·8		130·60	513·3		128·92	497·0	
25	129·82		587·0	139·15		686·8	130·62		676·0	127·10		659·7
30	130·50	483·6		139·05	476·8		130·42	507·3		126·94	505·3	
35	128·69		593·8	136·90		711·1	130·05		680·2	128·85		656·0
40	128·50	480·9		137·98	490·0		129·36	504·8		130·33	497·6	
45	128·43		595·8	134·72		744·1	130·42		693·3	130·15		655·0
50	127·30	481·8		131·35	500·7		129·87	497·3		128·95	503·7	
55	127·32		601·3	129·42		755·3	126·80		703·6	129·12		648·5

Hour, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
Bifilar Thermometer,	51·6	51·3	50·1	49·1	48·6	49·4	50·4	51·2	52·6	54·6	54·9	54.3	54·6	55·3	54·1	52·8	52·0
Balance Thermometer,	51·8	51·4	50·6	49·6	48·8	49·1	49·9	50·7	52.1	53·6	53·6	53.4	53·8	54·9	54·5	53·9	53·9

Göttingen Mean Time of Declination Observation.	NOVEMBER 26, 27.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10^{h}.			14^{h}.			18^{h}.			22^{h}.	
0	129·33	510·7		128·82	513·1		128·92	513·5		129·90	506·0	
5	129·23		634·4	128·93		634·2	128·92		626·3	129·56		614·6
10	128·93	512·6		129·96	512·4		128·92	512·4		130·50	506·9	
15	128·87		635·0	130·07		633·3	128·47		626·4	130·07		614·1
20	128·87	512·2		129·70	510·7		128·17	512·7		130·32	506·9	
25	129·00		635·9	129·65		632·7	128·14		626·8	130·58		610·8
30	128·35	512·3		129·56	509·6		127·78	512·3		130·87	508·1	
35	128·21		636·4	129·76		631·0	128·03		628·5	130·75		611·0
40	128·14	511·2		129·20	509·2		128·14	512·3		130·45	506·4	
45	127·97		635·0	128·34		628·6	128·30		629·2	131·28		611·3
50	127·81	510·8		127·68	509·5		128·62	511·7		130·93	508·3	
55	127·78		636·1	128·00		630·8	128·98		629·6	131·05		610·4
		11^{h}.			15^{h}.			19^{h}.			23^{h}.	
0	127·92	512·9		127·88	508·2		128·98	511·0		130·83	507·7	
5	127·70		634·3	127·63		628·1	128·87		629·8	131·38		610·2
10	127·68	512·5		126·98	508·0		128·89	511·2		131·31	508·6	
15	127·97		636·6	127·00		627·8	129·13		630·2	131·48		606·7
20	127·65	511·6		126·98	507·8		129·40	511·4		132·02	509·1	
25	127·83		638·5	127·15		629·6	129·18		630·4	132·30		607·3
30	127·88	512·6		127·15	509·6		129·07	511·5		132·07	509·5	
35	128·12		638·3	127·81		631·6	129·23		631·6	131·71		604·4
40	128·40	513·0		128·15	510·4		129·13	511·5		131·77	510·0	
45	128·35		638·1	128·34		629·1	129·16		631·1	132·05		606·3
50	128·83	511·3		128·35	511·6		129·25	511·3		132·22	510·5	
55	129·10		639·9	128·60		626·8	129·12		634·2	132·25		605·5
		12^{h}.			16^{h}.			20^{h}.			0^{h}.	
0	129·20	508·5		129·15	512·6		129·10	510·6		132·22	510·1	
5	128·90		639·5	129·22		626·2	129·16		634·0	132·40		605·6
10	128·93	510·0		129·38	511·7		128·98	510·4		132·47	511·4	
15	128·82		639·5	128·60		623·8	129·03		635·2	……		609·8
20	128·85	512·4		128·21	510·7		129·12	510·0		132·65	511·5	
25	128·60		637·9	127·74		624·1	129·02		633·7	132·71		609·7
30	128·23	509·3		128·34	512·4		128·96	510·2		132·73	511·9	
35	127·85		637·2	128·27		624·1	129·12		633·8	132·71		608·6
40	127·75	510·3		128·37	512·2		129·15	509·2		132·64	510·7	
45	128·03		636·7	128·01		623·8	129·07		633·8	132·48		609·8
50	128·23	512·4		127·81	511·9		129·15	509·0		132·65	509·7	
55	128·53		636·5	127·55		624·4	129·03		634·3	132·53		609·8
		13^{h}.			17^{h}.			21^{h}.			1^{h}.	
0	128·56	510·8		128·00	512·4		129·15	508·5		132·60	508·5	
5	128·37		636·3	128·49		624·9	129·12		633·2	132·75		608·6
10	128·28	509·1		128·78	512·6		129·09	508·3		133·04	510·5	
15	128·56		635·4	129·35		625·4	128·93		632·0	133·30		606·6
20	128·78	510·2		129·40	512·4		129·32	507·8		133·07	510·4	
25	128·75		633·1	129·29		623·9	129·43		631·6	133·27		606·0
30	128·40	508·9		129·22	513·6		129·23	507·0		132·97	511·5	
35	128·08		633·9	129·15		624·9	129·23		628·8	132·85		606·1
40	128·17	508·5		129·27	514·2		129·53	507·3		132·47	512·0	
45	128·20		633·8	129·25		622·2	129·50		624·3	132·48		606·0
50	128·12	510·0		129·93	513·8		129·72	507·3		132·44	512·9	
55	127·95		630·4	129·16		622·5	130·15		623·3	132·00		606·0

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	48·0	48·4	48·4	48·6	48·2	47·6	47·6	47·7	47·4	46·9	46·6	46·0	45·5	46·6	48·1	49·1
BALANCE THERMOMETER, .	46·1	48·4	47·6	47·8	47·9	47·6	47·6	47·6	47·4	47·4	47·2	46·5	45·8	46·3	47·1	48·1

Göttingen Mean Time of Declination Observation.	NOVEMBER 26, 27.						DECEMBER 22, 23.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^h.			6^h.			10^h.			14^h.	
0	131·91	512·3		131·73	514·2		………	513·6		………	515·2	
5	131·87		609·0	131·62		618·1	………		689·1	………		638·0
10	131·77	512·0		131·67	514·5		………	504·5		………	514·1	
15	131·80		609·7	130·83		619·4	………		691·7	………		632·6
20	132·02	511·9		130·87	515·0		………	507·4		………	516·1	
25	131 98		608·5	130·73		619·7	………		692·8	………		627·5
30	131·98	512·8		130·43	515·7		………	499·5		………	516·6	
35	132·08		610·4	130·55		620·2	………		691·0	………		623·1
40	132·27	512·3		130·20	513·9		………	505·8		………	515·2	
45	132·35		611·9	129·69		621·8	………		682·9	………		620·3
50	132·35	511·5		129·65	514·6		………	513·4		………	516·0	
55	132·44		613·2	129·69		620·5	………		682·1	………		619·9
		3^h.			7^h.			11^h.			15^h.	
0	132·40	511·2		129·50	515·6		………	506·3		………	515·7	
5	132·40		617·3	129·40		620·0	………		681·4	………		617·0
10	132·70	513·0		129·09	517·2		………	511·3		………	517·0	
15	132·85		618·5	129·00		619·0	………		676·7	………		615·3
20	132·93	513·0		129·16	516·6		………	520·0		………	515·4	
25	132·40		619·1	129·15		619·1	………		673·1	………		612·5
30	132·33	514·0		129·20	516·0		………	516·5		………	515·4	
35	132·33		619·6	129·29		618·2	………		678·6	………		612·1
40	132·35	515·4		129·52	515·8		………	514·3		………	515·4	
45	132·42		620·6	129·50		616·5	………		678·3	………		610·7
50	132·38	515·2		129·15	517·5		………	515·9		………	516·5	
55	132·33		619·7	129·03		616·1	………		675·1	………		609·4
		4^h.			8^h.			12^h.			16^h.	
0	132·37	514·6		129·12	517·1		………	518·2		………	516·7	
5	132·33		618·5	129·27		616·7	………		672·4	………		607·4
10	132·33	513·9		129·63	516·0		………	515·8		………	515·1	
15	132·33		617·9	129·78		618·8	………		671·5	………		606·0
20	132·24	515·3		129·93	513·6		………	510·5		………	514·9	
25	131·95		618·8	129·83		620·0	………		667·0	………		605·6
30	132·33	514·3		129·20	510·4		………	512·4		………	515·6	
35	132·33		620·0	127·74		622·2	………		663·6	………		606·7
40	132·27	511·9		126·74	508·6		………	513·6		………	517·4	
45	132·27		622·5	125·32		624·7	………		659·1	………		606·9
50	132·37	510·8		124·43	513·7		………	514·3		………	514·8	
55	132·15		625·2	125·55		625·0	………		657·8	………		603·7
		5^h.			9^h.			13^h.			17^h.	
0	131·84	511·9		126·78	515·8		………	510·4		………	517·0	
5	131·84		620·0	127·67		625·0	………		658·7	………		602·9
10	131·67	513·3		128·40	514·2		………	511·4		………	518·4	
15	131·88		620·4	128·72		624·5	………		658·5	………		598·7
20	132·33	513·2		125·68	513·1		………	507·3		………	514·4	
25	132·35		620·2	124·95		619·2	………		657·4	………		596·7
30	132·50	513·7		124·95	517·7		………	510·9		………	520·1	
35	132·33		619·2	125·22		621·9	………		652·1	………		594·9
40	132·27	514·3		125·23	517·3		………	514·9		………	518·0	
45	132·27		618·7	126·10		620·7	………		650·2	………		594·6
50	132·33	515·2		126·75	516·2		………	512·7		………	520·4	
55	132·27		617·0	126·97		619·9	………		650·4	………		595·3

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	49·8	49·2	49·6	50·4	51·4	52.0	52·3	52·6	52·9 ?	41·0	42·9	43·1	44·1	45·0	46·0	46·8	47·6
BALANCE THERMOMETER,	48·8	47·6	48·6	49·1	50·1	51·1	51·1	51·2	51·2 ?	39·7	41·4	41·7	42·5	43·5	44.0	45·1	45·6

Dec. 23d 0h, 1841. Discovered the stirrup of the Declinometer resting on the copper ring. The observations before 0h. were worthless, on this account. The magnet was wound up.

Göttingen Mean Time of Declination Observation.	DECEMBER 22, 23.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18h.			22h.			2h.			6h.	
0	………	521·4		………	514·2		132·97	516·5		133·00	517·2	
5	………		596·2	………		602·7	133·10		613·8	133·10		605·6
10	………	520·0		………	507·4		132·91	518·7		133·08	517·3	
15	………		595·2	………		599·1	132·93		614·1	133·05		605·9
20	………	521·6		………	514·6		132·71	518·8		133·05	516·8	
25	………		594·7	………		598·9	132·68		614·2	133·28		604·0
30	………	522·8		………	518·1		133·00	519·8		133·86	517·7	
35	………		588·9	………		594·8	132·83		611·0	133·07		609·3
40	………	525·0		………	515·0		132·68	518·6		133·30	512·3	
45	………		589·6	………		600·4	132·80		610·4	132·58		609·4
50	………	525·2		………	514·8		132·87	518·1		132·17	515·7	
55	………		584·1	………		592·7	132·67		611·2	130·69		601·1
		19h.			23h.			3h.			7h.	
0	………	525·3		………	512·4		132·67	520·6		130·70	519·0	
5	………		588·9	………		594·1	132·82		609·0	130·98		600·7
10	………	521·5		………	512·6		132·78	520·1		131·47	523·4	
15	………		589·9	………		596·9	132·93		609·8	131·18		601·8
20	………	519·2		………	513·6		132·60	517·8		130·12	514·0	
25	………		592·1	………		594·2	132·45		606·3	129·12		603·5
30	………	517·8		………	514·3		132·20	517·5		129·52	518·1	
35	………		593·7	………		593·2	132·24		604·9	129·67		603·5
40	………	516·4		………	513·5		131·85	518·1		130·35	520·3	
45	………		594·5	………		593·4	131·95		604·4	130·98		601·5
50	………	515·5		………	510·8		131·85	519·2		131·40	521·6	
55	………		599·6	………		598·1	131·57		608·4	131·67		599·2
		20h.			0h.			4h.			8h.	
0	………	509·2		………	506·1		131·40	519·5		132·07	519·6	
5	………		601·6	134·68		601·2	131·30		613·4	131·85		599·0
10	………	507·0		135·53	513·5		131·33	519·5		131·58	520·2	
15	………		605·0	135·17		598·9	131·37		618·5	131·73		598·9
20	………	506·3		134·19	511·0		131·02	520·7		131·57	518·3	
25	………		606·9	134·83		602·0	131·25		617·7	131·38		593·3
30	………	506·3		134·82	511·0		131·13	519·3		131·02	519·5	
35	………		606·2	134·90		599·6	131·15		616·9	131·05		591·4
40	………	514·5		134·66	510·2		131·20	520·2		131·02	520·3	
45	………		604·0	134·26		599·9	131·47		613·6	131·02		591·2
50	………	518·2		134·42	507·8		131·24	519·4		130·96	522·2	
55	………		606·5	133·92		605·6	131·40		612·6	129·95		589·3
		21h.			1h.			5h.			9h.	
0	………	522·0		133·73	510·2		131·50	519·8		127·54	517·0	
5	………		603·0	133·53		606·5	131·38		608·2	125·23		588·9
10	………	518·2		133·80	513·0		131·22	519·8		124·82	526·6	
15	………		602·3	133·57		607·2	131·17		609·3	126·50		590·5
20	………	518·4		133·38	516·2		131·30	519·7		127·63	520·4	
25	………		601·3	134·02		612·5	131·05		609·6	127·00		593·9
30	………	515·9		133·99	518·6		131·05	519·2		127·08	520·6	
35	………		599·2	134·08		612·1	131·45		609·9	127·00		599·1
40	………	516·9		134·32	518·9		131·65	518·6		127·57	521·7	
45	………		600·9	133·60		611·7	131·77		613·4	127·67		598·5
50	………	516·4		133·97	518·6		132·77	518·1		128·49	520·0	
55	………		604·0	133·77		610·9	132·93		614·0	128·49		601·8

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	48·5	49·8	49·8	49·9	49·4	48.7	48.4	47·9	47·6	48·5	49·5	50·1	50·6	51·6	52·1	52·6	53·1 ?
BALANCE THERMOMETER,	46·5	47·3	47·8	47·8	47·8	47·5	47·3	47·1	46·9	47·4	48·5	49·4	50·1	50·6	50·8	51·2	51·6 ?

Dec. 23d 0h. See note on the Declinometer, page 29.

Göttingen Mean Time of Declination Observation.	JANUARY 19, 20.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10^{h}.			14^{h}.			18^{h}.			22^{h}.	
0	123·98	519·1	958·1	126·77	520·4	943·6	127·90	523·3	948·1	129·30	512·0	944·5
6	123·45	520·4	959·5	127·63	521·2	944·2	128·03	523·1	945·3	129·80	512·3	942·9
12	123·25	518·9	961·1	127·65	520·6	944·1	127·97	521·3	948·7	130·22	512·7	942·6
18	123·42	517·8	958·9	127·45	519·4	944·8	127·97	519·9	……	129·78	512·7	944·4
24	123·70	516·8	960·5	127·57	519·7	943·9	127·27	520·7	944·8	130·13	512·2	947·4
30	123·58	517·9	958·7	127·70	519·9	945·4	127·27	521·7	945·4	130·09	512·1	946·7
36	123·17	517·5	958·2	128·01	519·9	946·7	128·80	521·7	946·9	131·15	513·2	950·2
42	………	519·2	958·0	128·01	520·0	945·9	127·27	520·1	942·9	………	513·4	951·5
48	123·73	517·5	958·4	127·63	520·0	946·4	126·97	523·9	942·7	132·37	512·6	954·4
54	125·48	516·6	959·1	127·50	520·8	947·4	125·79	523·2	943·0	132·93	512·3	955·5
		11^{h}.			15^{h}.			19^{h}.			23^{h}.	
0	125·92	515·0	959·9	127·67	522·2	948·7	125·63	525·6	943·7	132·44	512·0	957·5
6	125·90	513·8	957·2	127·78	520·7	949·3	126·19	523·7	940·7	132·98	513·1	957·9
12	125·05	515·0	956·0	127·92	520·3	949·2	126·30	524·0	941·9	133·13	512·2	957·6
18	125·35	517·0	962·9	127·30	519·1	947·2	126·82	523·8	942·4	133·11	512·3	958·4
24	126·28	515·2	962·1	126·40	519·7	947·3	127·55	521·3	941·7	133·30	513·0	956·9
30	125·48	514·6	958·3	126·10	519·8	945·4	125·79	524·2	938·1	133·67	512·7	956·2
36	124·07	523·5	952·0	125·65	519·5	946·8	126·72	524·3	940·2	133·67	512·9	957·4
42	126·48	520·6	950·3	125·52	518·9	947·5	126·62	523·3	940·8	133·80	513·2	956·0
48	126·40	527·4	944·2	125·60	517·7	949·0	126·59	524·2	938·2	134·27	513·5	955·2
54	128·17	521·0	943·7	126·68	516·3	949·1	126·77	524·5	940·7	134·31	514·1	954·8
		12^{h}.			16^{h}.			20^{h}.			0^{h}.	
0	128·25	516·8	942·6	126·82	514·8	950·9	128·65	522·1	941·0	134·47	514·0	956·8
6	131·47	517·2	939·4	127·81	514·4	953·3	129·27	522·2	941·9	134·37	514·8	956·6
12	134·13	514·2	934·6	128·35	515·2	954·0	129·65	522·3	942·6	134·33	515·3	958·2
18	134·92	514·4	928·5	128·52	515·5	953·8	129·65	521·6	941·1	134·44	515·6	958·4
24	134·57	519·9	919·2	129·37	515·7	955·1	129·43	522·2	939·3	134·92	516·1	958·5
30	132·78	528·8	911·2	130·38	515·9	953·2	129·12	520·6	941·8	135·25	516·9	960·3
36	131·62	529·0	907·5	130·80	515·3	952·8	129·30	518·0	942·3	135·72	518·1	962·4
42	130·55	527·0	908·1	130·35	515·0	951·1	129·18	518·4	943·5	………	517·9	962·6
48	129·58	525·0	909·1	129·28	515·4	948·4	129·23	517·5	942·9	135·15	518·0	964·4
54	129·49	523·2	913·5	127·95	515·7	947·3	129·21	517·9	941·8	135·02	519·5	964·0
		13^{h}.			17^{h}.			21^{h}.			1^{h}.	
0	129·92	521·8	918·2	127·32	516·0	948·5	129·15	518·7	943·3	135·28	519·5	963·1
6	128·98	520·1	918·6	127·01	517·1	949·2	128·70	515·9	943·3	135·60	520·7	960·9
12	127·48	520·1	919·9	126·82	517·0	949·9	129·23	516·1	945·4	135·73	521·4	959·1
18	126·28	519·9	919·4	127·10	517·9	951·3	128·78	514·3	944·6	135·32	521·5	956·8
24	125·60	521·0	922·1	127·47	517·8	952·5	128·94	515·2	944·9	135·08	521·5	959·4
30	125·68	519·5	924·6	127·87	519·2	953·8	128·37	515·2	945·7	135·13	522·0	952·1
36	125·66	518·6	925·9	128·43	520·4	955·1	128·97	516·0	947·9	135·17	522·7	951·1
42	125·75	518·2	937·6	129·03	520·2	955·1	128·98	515·0	945·6	136·05	522·7	948·6
48	125·62	519·2	939·5	128·92	520·7	953·0	129·23	515·5	945·6	135·95	522·4	948·6
54	126·26	519·2	941·4	128·60	522·3	951·4	129·52	513·5	944·9	136·25	523·5	947·5

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	55·9	55·6	55·6	55·6	56·8	56·8	54·9	54·6	55·8	57·0	57·8	56·7	54·6	53·5	53·6	55·6
BALANCE THERMOMETER, .	56·6	56·6	56·1	56·1	58·0	57·3	55·9	56·5	57·5	58·3	59·4	57·3	56·5	55·3	54·6	57·7

During the Terms of 1842, the Bifilar was observed 2^{m}, and the Balance 4^{m}, *after* the corresponding minutes of Declination observation.

January 20^{d} 6^{h}, 1842. Discovered some of the fibres of the Declination thread broken and caught on the copper ring; the fibres were detached from the ring, but the thread broke away fibre by fibre during the remainder of the term. The observations before 6^{h}. are corrected by minus 13′ in order to make the readings nearly as on other days, the difference being due to torsion force. These observations are given here; they are not however considered of much, if of any value, as the fibres were probably breaking throughout the whole term.

Göttingen Mean Time of Declination Observation.	January 19, 20.						February 25, 26.					
	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^{h}.			6^{h}.			10^{h}.			14^{h}.	
0	136·28	524·9	945·8	………	525·7	952·3	122·42	524·3	862·1	132·25	522·6	869·7
6	136·42	525·3	944·1	………	525·4	952·2	125·99	518·4	869·0	132·82	523·7	869·2
12	136·53	525·7	943·4	………	525·6	953·5	128·85	517·6	879·7	133·64	521·5	867·8
18	136·45	525·3	943·4	………	525·2	953·6	131·09	516·0	884·2	134·15	521·7	866·7
24	136·53	525·4	942·5	………	524·5	956·4	131·65	515·7	883·8	133·82	522·9	863·8
30	136·33	525·6	942·9	………	523·6	956·9	131·16	519·3	……	134·40	521·0	864·0
36	136·15	525·8	941·8	………	523·1	957·2	131·72	522·9	878·0	133·67	523·5	862·7
42	136·15	526·2	941·7	………	523·1	957·7	131·90	524·5	878·4	134·70	523·6	862·9
48	136·05	526·6	943·0	………	524·0	957·5	132·33	524·8	879·2	134·72	520·9	861·1
54	135·85	526·6	945·0	………	524·3	957·3	133·08	523·9	877·0	134·33	523·9	861·1
		3^{h}.			7^{h}.			11^{h}.			15^{h}.	
0	135·70	527·2	944·0	………	523·9	956·9	133·28	522·1	876·1	135·60	523·9	861·7
6	135·72	527·4	944·4	………	523·8	956·5	132·88	522·8	875·9	135·33	522·9	860·4
12	135·75	527·4	943·4	………	523·6	958·6	133·00	521·0	877·6	135·02	525·7	861·1
18	135·68	526·8	944·0	………	524·1	958·0	132·44	523·1	876·2	135·22	526·5	861·2
24	135·68	526·7	941·0	………	524·7	958·3	131·92	520·4	878·2	134·90	525·8	859·6
30	135·39	525·9	943·0	………	525·0	958·0	131·00	518·8	879·2	133·53	526·9	858·6
36	135·30	526·6	942·9	………	525·0	957·8	131·32	525·0	878·3	132·58	525·4	858·9
42	135·33	526·7	951·2	………	524·1	959·5	131·63	522·8	……	131·65	523·6	861·2
48	135·15	526·3	951·3	………	523·6	959·8	131·35	526·0	879·6	131·16	523·1	863·0
54	135·10	525·5	952·1	………	523·3	961·4	131·22	521·1	882·7	131·98	521·2	863·4
		4^{h}.			8^{h}.			12^{h}.			16^{h}.	
0	138·20	526·9	953·6	………	522·3	962·4	131·27	519·7	879·9	131·20	521·1	864·4
6	138·72	526·5	953·7	………	520·9	965·3	130·42	520·8	879·9	131·70	521·2	866·3
12	138·85	526·1	953·3	………	521·7	966·2	130·00	521·1	879·2	131·69	519·7	867·1
18	138·89	526·8	954·1	………	522·1	966·0	129·65	519·7	881·1	131·62	522·0	865·8
24	138·83	526·8	955·4	………	522·9	965·8	129·30	520·9	879·4	131·76	520·6	866·2
30	138·82	525·6	954·9	………	519·9	964·4	129·50	522·0	879·1	131·69	521·5	866·1
36	138·85	525·6	954·6	………	517·8	966·6	129·55	520·9	881·0	131·90	522·2	864·3
42	138·56	525·6	954·5	………	517·8	966·3	129·52	519·6	882·1	132·44	522·4	863·6
48	138·60	525·8	955·3	………	516·9	968·6	129·62	519·5	881·4	132·33	521·6	863·6
54	138·53	525·4	955·5	………,	519·1	968·4	129·78	522·9	881·7	132·50	524·5	863·4
		5^{h}.			9^{h}.			13^{h}.			17^{h}.	
0	138·43	525·6	954·9	………	519·3	968·1	129·89	521·9	883·7	132·25	522·6	863·8
6	138·37	525·7	955·9	………	519·7	967·9	130·98	520·4	886·3	132·40	521·7	863·6
12	137·65	525·9	955·7	…… …	519·5	969·2	131·65	519·8	884·6	132·50	522·7	862·8
18	137·63	526·5	955·1	………	520·6	968·6	132·67	522·4	883·8	132·82	520·3	864·2
24	137·77	526·8	958·4	………	520·2	969·1	132·20	522·3	882·0	132·85	522·3	863·3
30	137·77	526·4	959·0	………	519·9	968·2	133·25	523·2	880·4	132·64	522·2	864·1
36	138·03	526·3	959·1	………	519·5	970·1	132·40	521·2	880·0	132·35	522·3	863·6
42	137·95	525·8	958·1	………	519·0	970·6	133·04	522·1	877·4	132·05	522·3	866·1
48	138·03	525·4	958·1	………	519·2	970·2	132·95	521·6	873·2	132·27	522·7	865·1
54	138·01	526·1	958·0	………	517·6	971·9	132·67	522·0	870·8	132·28	523·3	……

Hour, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
Bifilar Thermometer,	58·8	60·1	60·4	59·6	58·7	58·4	57·6	57·2	56·8 ?	52·0	52·6	52·1	51·6	52.2	52·5	52·9	53·3
Balance Thermometer,	60·9	61.6	62·2	61·2	60·2	59.9	59·2	58.9	58·6 ?	52·1	52·6	53.1	52·2	53·9	54·1	54·6	55·1

Jan. 19^{d}, 20^{d}. See note on the Declinometer, page 31.

Göttingen Mean Time of Declination Observation.	FEBRUARY 25, 26.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18h.			22h.			2h.			6h.	
0	132·47	523·3	874·0	134·27	516·2	888·9	136·30	525·6	875·1	132·84	526·6	864·0
6	132·98	522·8	874·7	134·88	515·6	891·8	136·33	526·5	875·1	132·84	526·0	859·6
12	132·98	522·7	874·9	134·11	515·3	893·3	136·28	527·2	875·4	132·93	524·1	864·4
18	133·18	521·9	877·7	133·38	514·7	899·7	136·82	528·8	875·8	132·38	522·9	860·8
24	132·98	522·7	877·2	133·31	513·7	884·1	137·02	529·2	874·7	132·00	524·1	865·3
30	132·75	523·8	877·1	133·30	514·2	885·8	136·73	528·9	874·2	131·76	525·5	866·5
36	132·80	523·8	876·0	133·60	513·4	888·1	136·26	528·3	371·8	130·56	526·0	868·5
42	132·64	523·9	875·8	133·68	513·3	886·4	136·35	528·5	869·7	131·42	523·4	867·8
48	132·55	524·3	874·4	133·30	513·8	885·5	136·03	528·0	867·9	130·95	520·0	867·9
54	132·55	524·7	872·4	134·18	514·0	885·7	135·97	529·0	866.2	129·85	520·0	870·4
		19h.			23h.			3h.			7h.	
0	131·87	524·9	871·2	134·58	515·1	882·0	135·60	527·4	864·1	128·54	518·3	868·0
6	131·95	527·2	867·8	134·50	......	882·0	134·88	527·0	862·5	126·52	522·9	867·7
12	131·93	529·9	866·6	134·15	516·1	881·0	134·50	525·2	859·3	126·19	523·8	869·5
18	131·96	526·9	863·6	134·58	517·0	884·2	134·68	529·9	857·7	127·63	525·5	872·3
24	131·62	527·8	860·9	135·33	515·2	884·0	134·60	528·6	857·6	129·73	526·5	871·9
30	131·45	527·5	862·3	134·85	514·9	882·8	134·72	529·3	857·9	130·30	526·2	871·7
36	131·69	525·2	864·7	135·66	513·8	879·6	134·73	530·6	859·6	131·32	525·5	871·5
42	131·55	524·5	863·4	136·12	516·0	882·3	134·82	530·9	860·5	132·27	525·3	869·5
48	131·82	524·1	861·1	135·79	514·0	883·2	134·24	528·8	861·8	132·77	525·5	869·1
54	132·02	522·7	861·2	135·52	513·8	881·9	134·20	528·5	......	132·05	524·9	865·1
		20h.			0h.			4h.			8h.	
0	131·30	524·2	859·8	135·22	514·2	883·6	133·97	528·1	865·1	131·65	525·9	862·3
6	131·49	525·1	857·1	135·66	512·5	890·9	133·80	528·1	865·2	132·35	526·4	863·9
12	132·25	526·9	857·8	135·52	513·9	892·5	133·87	528·8	864·4	133·11	526·7	863·2
18	133·10	525·1	860·8	135·95	513·0	898·4	133·77	530·3	866·2	133·37	525·2	863·5
24	133·35	524·0	861·8	135·77	514·3	900·4	133·70	529·2	865·1	133·37	526·1	863·5
30	133·57	522·5	863·6	135·83	515·4	899·1	133·60	528·9	863·5	133·02	525·7	864·2
36	132·62	521·9	863·0	136·08	517·0	......	133·50	530·7	863·3	132·93	526·2	862·3
42	132·65	523·2	863·7	135·82	519·1	894·6	133·37	529·0	861·0	132·97	525·2	865·8
48	132·40	522·9	865·2	136·35	518·8	894·4	133·51	530·3	860·1	132·93	525·1	864·4
54	132·42	526·0	869·1	136·17	520·7	893·5	133·50	532·2	859·5	132·87	524·6	863·4
		21h.			1h.			5h.			9h.	
0	133·30	525·9	870·5	....	519·4	892·3	133·57	532·2	858·8	132·87	524·5	864·2
6	133·58	524·5	872·0	136·30	522·0	890·4	133·42	526·2	858·0	132·80	524·0	864·4
12	133·51	525·5	873·1	136·30	519·2	892·0	133·42	526·7	856·7	132·53	523·5	864·7
18	134·92	521·5	870·1	136·50	519·8	892·8	132·90	530·8	857·0	132·67	522·6	866·5
24	135·13	520·7	870·0	136·73	520·0	890·4	133·24	531·9	861·0	132·82	524·0	866·4
30	134·63	519·4	882·5	136·53	520·0	890·2	133·00	527·4	861·1	132·85	527·1	864·3
36	134·53	519·5	885·9	136·48	521·5	885·6	133·00	527·7	861·8	132·13	522·8	863·0
42	134·57	518·4	887·3	136·53	523·9	883·3	133·17	528·6	861·0	132·33	521·6	870·2
48	134·20	519·0	888·0	136·53	523·3	880·5	133·00	527·2	863·5	132·24	522·3	876·8
54	135·32	516·7	890·8	136·65	523·4	879·5	132·93	526·9	864·4	132·33	522·8	874·9

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	52·8	52·9	53·6	53·3	52·6	51·4	50·6	52·2	54·2	56·6	57·3	58·3	58·6	57·7	56·7	55·6	54·6
BALANCE THERMOMETER,	54·9	55·2	55·9	55·2	54·1	53·4	52·1	54·1	56·1	58·2	59·1	59·9	59·7	58·7	58·2	57·2	56·2

Göttingen Mean Time of Declination Observation.	MARCH 23, 24.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10h.			14h.			18h.			22h.	
0	112·64	529·1	941·9	121·50	527·2	673·0	126·90	531·6	823·3	129·60	511·3	865·7
6	112·87	531·7	931·4	121·53	527·5	686·5	126·68	528·9	822·4	131·32	506·8	867·9
12	113·63	535·0	918·5	121·68	526·7	696·9	126·62	531·0	831·6	131·43	502·3	867·4
18	114·11	532·9	917·1	121·95	525·6	707·6	126·77	528·8	830·7	131·22	497·0	867·7
24	113·88	534·4	916·0	121·85	523·7	717·4	127·23	529·4	831·1	129·96	501·1	868·7
30	115·02	532·9	893·3	121·95	525·3	728·8	126·05	532·1	829·4	132·33	503·9	870·2
36	115·72	534·6	885·1	122·07	524·3	737·5	126·87	532·9	830·7	133·64	506·6	870·2
42	115·57	535·3	878·4	121·43	527·0	748·0	127·84	531·9	830·9	132·73	……	868·7
48	117·23	531·4	871·6	122·87	525·3	762·9	125·85	538·3	827·9	131·02	502·4	868·5
54	116·90	529·9	870·6	122·90	524·8	769·4	126·82	537·1	829·0	131·09	502·3	866·8
		11h.			15h.			19h.			23h.	
0	117·70	529·5	865·8	123·44	526·3	777·3	126·87	536·0	827·3	130·13	503·9	866·4
6	118·90	528·3	863·9	124·05	528·6	783·4	125·59	537·3	824·8	132·20	505·8	869·2
12	119·85	528·7	560·0	125·48	523·4	790·8	126·28	537·9	826·6	131·50	508·9	871·5
18	120·32	530·3	855·9	124·77	526·5	796·3	127·37	534·6	828·1	132·57	511·5	869·0
24	122·02	527·3	848·0	124·37	527·5	799·2	126·25	534·2	831·1	133·27	512·1	867·6
30	121·12	524·9	836·0	124·52	529·7	800·5	128·28	533·3	834·1	133·45	515·8	866·2
36	121·05	529·4	826·2	124·52	527·1	804·0	125·97	530·1	836·7	133·65	515·1	865·7
42	120·82	532·4	824·9	124·24	530·6	805·6	125·48	529·5	838·2	133·00	515·5	865·0
48	119·83	532·9	820·9	124·05	527·1	807·0	126·72	527·6	842·3	132·33	518·7	863·5
54	120·72	531·1	808·6	124·08	523·9	813·8	126·32	526·3	845·0	131·80	521·0	863·2
		12h.			16h.			20h.			0h.	
0	120·12	528·8	795·7	122·80	530·3	812·8	125·45	527·8	849·9	131·93	523·4	858·7
6	122·65	525·5	786·8	124·82	529·3	815·5	124·13	519·9	849·0	133·05	523·7	857·5
12	125·50	525·9	769·3	124·72	529·2	815·7	125·33	524·9	850·0	133·13	523·2	858·4
18	129·96	527·6	739·8	124·77	529·5	816·8	127·07	526·5	851·8	133·38	524·6	855·7
24	133·33	514·6	682·6	124·82	529·8	818·8	125·88	525·0	853·0	134·15	524·4	858·5
30	134·35	507·9	623·5	125·75	526·8	820·5	125·59	520·6	852·6	134·15	523·8	856·5
36	129·03	521·0	586·3	125·23	527·7	822·6	126·48	530·4	857·4	134·22	524·3	857·5
42	129·69	531·7	583·3	125·82	528·3	822·9	122·00	522·2	854·3	134·05	521·8	……
48	124·10	506·4	544·9	126·75	526·8	822·9	124·40	524·7	852·9	134·27	523·7	855·6
54	121·90	483·9	521·2	126·72	525·8	826·2	123·45	524·4	851·4	134·66	523·7	856·0
		13h.			17h.			21h.			1h.	
0	125·03	477·7	532·0	127·35	526·3	828·1	127·77	527·1	849·0	134·50	524·1	856·3
6	135·79	511·6	605·1	127·70	523·7	828·3	124·27	525·5	849·1	134·70	523·0	850·8
12	140·38	531·1	575·7	128·25	530·2	826·8	124·48	526·0	846·3	134·88	524·3	849·6
18	131·02	534·6	550·3	128·92	523·0	827·3	126·05	523·2	846·4	134·79	524·3	850·4
24	124·75	531·9	556·9	128·74	526·4	827·3	128·10	521·9	857·1	134·93	524·9	849·9
30	120·62	523·7	584·2	127·88	530·9	825·8	126·82	522·2	856·0	134·99	525·8	849·6
36	119·76	519·8	611·5	127·97	528·4	824·5	126·46	520·5	859·2	134·75	526·0	849·6
42	120·89	519·9	631·1	126·45	532·0	826·4	125·62	519·3	860·2	134·73	526·2	848·1
48	121·49	526·4	642·0	126·87	531·4	826·6	127·35	516·0	861·0	134·66	525·9	850·3
54	121·47	528·9	647·2	127·47	528·8	825·7	128·21	512·4	864·1	134·27	527·7	849·0

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	54·6	55·6	55·9	56·4	56·6	56·7	56·6	56·5	56·5	56·9	56·7	57·6	58·6	59·4	60·1	60·2
BALANCE THERMOMETER, .	55·1	56·7	57·2	57·7	58·3	58·3	58·2	58·4	58·5	58·9	58·2	59·2	60·0	60·5	61·0	61.0

Göttingen Mean Time of Declination Observation.	March 23, 24.						April 20, 21.					
	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.	Declination.	Bifilar Corrected.	Balance Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^h.			6^h.			10^h.			14^h.	
0	134·30	529·1	848·2	124·57	536·7	863·9	131·58	532·0	872·4	128·08	529·1	800·9
6	133·87	526·9	848·5	123·97	542·3	864·5	131·49	532·0	870·8	129·27	532·6	799·7
12	134·08	528·8	848·3	123·24	543·1	865·7	131·76	532·3	870·9	130·40	532·5	790·5
18	134·22	529·4	848·3	123·65	540·5	870·0	132·33	535·5	863·9	125·72	530·8	792·4
24	133·90	529·3	847·0	124·39	533·1	872·2	131·65	546·4	854·2	123·60	529·0	799·6
30	133·98	527 6	846·3	125·22	532·4	872·0	133·02	543·8	852·5	123·50	527·8	805·8
36	133·75	527·7	845·8	125·62	530·9	869·9	133·08	538·5	851·2	123·60	530·1	808·7
42	133·57	528·9	845·6	125·62	529·4	868·5	132·97	532·8	849·8	126·55	530·2	808·0
48	133·17	527·6	844·8	125·40	529·3	867·9	132·37	529·1	853·1	127·95	526·7	800·5
54	132·97	528·3	843·5	124·13	532·9	867·9	132·15	528·4	849·8	126·73	527·1	790·6
		3^h.			7^h.			11^h.			15^h.	
0	132·84	529·7	842·6	124·27	533·8	869·1	131·73	529·1	856·2	125·32	526·2	784·1
6	132·53	528·1	845·2	124·85	532·6	868·9	131·82	532·0	856·0	124·73	522·5	784·3
12	132·44	527·0	844·3	124·95	531·2	869·0	131·73	531·1	858·6	124·66	518·2	776·0
18	132·08	529·2	843·7	125·39	531·4	866·9	131·65	529·1	......	123·31	511·8	773·8
24	131·89	528·2	843·8	124·82	534·2	864·9	133·88	533·6	861·5	122·38	505·8	769·5
30	131·65	529·7	844·1	124·88	538·8	862·9	135·39	537·1	854·9	123·31	503·4	766·0
36	131·60	530·3	844·8	124·85	539·5	860·6	135·83	539·5	849·4	125·53	497·6	755·0
42	131·29	529·7	844·9	124·80	537·7	859·4	135·06	541·1	840·4	125·68	496·2	733·4
48	130·78	529·0	844·5	124·68	535·4	859·4	134·57	542·6	835·0	124·92	497·6	713·3
54	130·82	528·6	844·3	124·43	535·3	859·1	134·02	540·3	833·2	126·25	476·7	718·2
		4^h.			8^h.			12^h.			16^h.	
0	131·05	536·4	844·4	123·93	533·5	860·9	132·84	541·9	829·8	131·53	470·3	714·9
6	130·12	528·9	844·6	123·84	527·9	861·7	132·84	541·1	827·9	139·82	472·8	734·5
12	130·62	535·7	844·8	120·72	530·7	862·7	132·22	542·7	822·5	146·82	502·0	728·2
18	130·13	531·6	846·6	117·15	526·0	858·7	131·73	543·1	818·3	145·65	......	712·8
24	129·93	532·0	846·8	113·80	535·9	851·5	130·96	542·4	814·4	143·45	508·6	705·7
30	129·73	532·1	847·7	112·93	549·1	827·5	129·95	540·2	812·7	142·74	506·2	709·5
36	129·93	532·8	848·2	109·38	575·1	814·1	129·67	534·9	814·2	141·57	508·4	708·7
42	124·93	534·7	847·9	112·87	558·4	801·7	128·14	527·1	818·9	139·78	517·3	717·1
48	129·08	532·2	849·4	116·30	556·5	795·1	127·32	525·2	822·9	137·92	516·5	718·5
54	130·20	524·9	849·7	123·44	543·8	797·3	128·38	525·0	828·9	....	518 0	717·2
		5^h.			9^h.			13^h.			17^h.	
0	130·43	534·1	852·0	123·60	530·1	795·3	129·69	519·8	832·4	135·32	517·2	722·5
6	129·98	526·4	854·7	122·30	532·7	793·7	130·35	522·9	834·1	133·37	519·2	727·1
12	128·94	519·7	861·1	120·85	539·3	790·8	131·65	522·5	835·4	131·98	521·4	737·4
18	128·25	518·8	862·1	122·27	541·5	788·6	136·02	533·7	827·5	131·22	525·3	745·4
24	127·05	517·7	864·5	124·27	536·3	787·6	137·48	535·0	814·2	131·16	526·3	757·9
30	125·33	525·8	866·0	123·68	530·9	787·4	136·63	530·8	805·1	131·45	524·0	761·0
36	125·30	531·1	864·5	122·08	527·0	787·6	135·33	527·7	796·6	130·87	526·1	763·9
42	125·28	530·0	865·4	119·58	532·8	787·5	132·45	528·5	794·2	130·83	525·0	769·0
48	125·48	532·6	864·7	120·75	536·2	786·2	130·78	528·7	794·3	129·27	529·4	776·4
54	125·68	533·0	864·8	124·30	535·2	796·3	128·94	527·7	799·1	129·28	532·5	781·2

Hour, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
Bifilar Thermometer,	60·4	60·4	60·9	61·9	63·1	63·4	63·0	62·4	61·8 ?	59·6	59·6	59·1	59·1	59·0	59·4	59·2	58·8
Balance Thermometer,	61·1	61·3	61·9	62·9	63·7	63·9	64·2	64·2	64·2 ?	58·7	59·2	59·2	59·2	59·5	60·1	60·2	59·7

Göttingen Mean Time of Declination Observation.	APRIL, 20, 21.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div,	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18^h.			22^h.			2^h.			6^h.	
0	128·87	534·2	790·1	133·78	516·7	858·1	140·33	526·9	848·5	133·64	550·0	913·2
6	128·78	535·8	795·6	135·32	512·8	861·4	140·27	530·4	847·8	133·67	546·2	914·8
12	128·27	535·6	800·7	135·22	513·4	860·5	140·13	530·3	848·5	132·60	542·7	916·6
18	127·88	535·2	809·3	134·44	515·7	859·2	139·72	532·8	845·8	132·84	538·7	920·2
24	127·81	532·6	816·2	135·23	516·1	863·6	140·18	537·5	847·6	131·63	544·1	922·0
30	127·20	528·5	822·4	136·83	514·4	864·4	140·38	542·7	849·7	131·09	544·5	924·8
36	127·21	527·8	828·6	136·62	510·4	863·0	140·70	543·9	852·2	131·05	546·2	924·7
42	127·10	527·2	834·2	137·18	511·0	864·1	140·56	544·8	854·9	131·13	545·8	925·2
48	128·12	526·3	840·1	136·93	510·9	863·5	140·40	544·6	858·4	132·97	539·0	928·1
54	127·35	529·0	842·1	137·60	510·6	860·8	140·32	546·3	861·0	132·98	534·9	927·9
		19^h.			23^h.			3^h.			7^h.	
0	126·87	532·0	843·4	137·70	508·7	861·6	139·80	543·9	864·9	131·70	538·8	925·5
6	127·23	529·8	845·4	137·58	505·0	868·4	139·58	535·6	868·6	133·78	535·3	928·3
12	127·72	527·4	847·7	138·37	501·4	868·6	139·30	530·0	873·1	133·20	536·0	923·1
18	129·56	527·4	850·3	138·95	505·9	863·9	140·30	532·3	875·5	132·88	534·1	920·8
24	130·43	525·3	852·0	139·12	508·4	860·6	141·58	537·2	883·0	132·40	535·7	916·7
30	132·91	530·5	853·9	139·42	507·9	858.7	141·73	541·3	886·9	132·93	537·9	911·9
36	133·25	524·3	856·5	139·32	504·1	862·5	139·29	540·3	897·9	133·47	539·9	906·1
42	134·65	521·9	858·4	140·13	501·7	863·5	136·32	535·1	904·3	133·60	542·5	902·6
48	135·80	518·1	858·4	141·00	499·9	864·1	129·18	535·2	909·9	133·70	540·5	898·3
54	134·65	515·8	859·1	141·48	503·3	858·0	127·34	546·3	915·4	133·27	539·9	896·5
		20^h.			0^h.			4^h.			8^h.	
0	133·20	511·7	859·8	141·17	506·2	859·2	128·77	538·0	918·4	132·55	535·0	892·4
6	130·62	505·7	859·4	141·33	508·9	855·4	130·75	532·9	921·3	132·15	535·4	892·9
12	130·75	506·5	861·4	142·38	506·8	861·6	128·97	546·4	923·9	131·62	537·1	895·0
18	131·69	507·1	864·1	141·27	500·7	861·7	127·57	553·9	924·7	131·13	539·7	894·7
24	134·47	510·0	866·2	140·50	501·5	861·7	128·88	554·6	927·3	130·78	535·3	895·3
30	135·06	511·2	868·8	141·47	501·8	858·6	131·18	554·8	926·6	129·62	534·5	890·6
36	138·96	496·7	864·0	141·28	505·6	858·8	131·16	548·0	927·2	125·99	542·8	871·9
42	132·37	508·9	865·3	141·05	510·5	854·7	134·68	552·6	924·0	127·23	552·0	876·8
48	133·11	506·8	868·4	141·67	509·6	854·4	135·79	542·0	920·8	132·27	540·6	876·3
54	134·18	508·1	……	140·90	516·1	850·3	136·42	533·2	919·8	132·93	534·7	870·2
		21^h.			1^h.			5^h.			9^h.	
0	133·40	509·3	871·2	140·92	516·7	853·0	135·75	531·8	921·8	132·93	532·5	867·9
6	133·65	510·4	869·6	140·98	523·3	851·5	134·95	524·4	925·2	132·20	533·2	865·2
12	133·35	511·7	868·4	140·30	523·5	853·2	131·32	541·2	926·2	131·83	534·9	862·6
18	132·70	509·4	869·0	141·42	522·1	854·7	………	555·5	928·4	132·37	536·0	863·8
24	133·11	510·9	869·0	141·68	521·9	855·5	129·52	558·9	930·1	132·37	535·1	860·7
30	132·98	513·5	868·3	140·78	521·7	851·6	127·67	554·0	926·9	132·80	536·7	859·0
36	132·68	513·1	867·5	140·92	525·1	847·6	128·97	551·0	922·6	133·40	536·6	857·4
42	132·58	515·7	866·9	141·51	524·1	848·7	129·27	552·0	919·8	133·67	535·2	852·8
48	134·28	513·0	866·6	141·27	524·6	845·9	130·27	553·3	915·6	133·25	533·8	851·2
54	133·80	514·5	865·1	140.78	525·0	845·8	132·33	551·8	912·6	132·45	531·3	853·5

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	58·5	57·8	57·1	57·1	57·7	58·6	60·4	61·8	63·8	65·7	67·7	68·1	68·4	68·6	68·0	67·6	67.2
BALANCE THERMOMETER,	59·6	59·1	58·7	58·7	58·5	59·5	60·2	61·6	63·1	64·3	66·2	66·8	67·3	67·3	67·0	67·3	67·3

Göttingen Mean Time of Declination Observation.	MAY 27, 28.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10^{h}.			14^{h}.			18^{h}.			22^{h}.	
0	129·30	543·0	815·8	127·94	533·9	783·2	126·59	......	827·4	127·34	527·4	828·8
6	129·34	542·7	812·1	127·87	534·1	785·7	126·37	536·1	839·6	127·08	527·3	826·7
12	129·65	542·7	810·5	128·18	533·9	788·3	126·46	534·9	838·7	127·78	528·2	825·7
18	129·65	542·7	808·3	128·57	534·8	788·0	125·13	531·9	840·6	127·47	525·7	823·1
24	130·02	544·0	805·3	128·95	534·3	788·2	125·08	531·1	841·4	128·10	527·6	822·3
30	129·41	542·9	805·4	128·77	534·4	790·4	125·25	531·3	845·1	128·18	526·8	822·6
36	128·92	......	804·6	128·92	533·5	790·7	126·43	532·3	849·8	128·52	527·3	821·7
42	129·20	541·8	803·2	128·48	533·4	791·8	126·37	533·3	851·6	128·97	523·3	819·2
48	129·17	543·0	799·3	128·92	531·8	793·0	126·88	531·5	851·6	128·72	526·1	816·2
54	129·60	546·3	797·6	129·47	532·7	796·3	126·20	529·9	851·0	129·62	525·8	814·9
		11^{h}.			15^{h}.			19^{h}.			23^{h}.	
0	128·94	546·8	797·4	129·87	534·8	792·5	126·37	530·2	851·5	130·12	523·8	815·2
6	....	543·4	800·0	130·00	534·2	788·6	125·66	530·2	851·0	130·47	524·3	808·8
12	129·27	541·8	799·2	129·41	534·7	790·9	126·53	528·8	848·4	130·60	523·4	807·7
18	129·10	541·3	799·0	130·33	534·6	794·4	127·43	529·1	847·2	131·40	523·4	806·2
24	128·98	541·2	797·9	130·45	534·5	794·0	126·26	531·1	843·7	132·24	523·7	805·2
30	128·97	540·9	798·7	130·72	535·0	792·3	126·77	532·5	845·0	133·02	525·9	806·0
36	128·83	541·2	797·5	130·22	534·5	792·4	127·61	530·1	845·4	133·33	523·5	805·0
42	128·94	541·6	796·6	130·12	536·2	797·1	127·37	529·9	844·1	133·50	525·6	804·9
48	128·80	541·8	796·7	130·43	......	795·7	127·61	529·7	844·1	133·70	525·4	802·7
54	128·94	542·1	795·1	130·45	535·8	797·5	126·90	527·0	843·7	133·47	......	803·3
		12^{h}.			16^{h}.			20^{h}.			0^{h}.	
0	128·97	540·6	795·1	129·41	535·0	798·3	126·30	530·8	841·9	134·38	526·8	802·1
6	....	540·7	795·7	129·27	534·1	801·3	126·46	531·6	840·6	134·33	526·3	801·7
12	130·67	541·1	795·3	129·28	533·8	806·2	126·57	530·1	839·9	134·13	528·2	800·0
18	130·10	541·2	793·7	128·54	535·5	808·8	125·95	531·0	841·5	135·02	531·4	798·4
24	129·53	542·7	794·0	128·68	535·1	815·6	125·28	532·7	839·7	135·19	531·6	797·5
30	129·43	542·0	786·1	128·70	535·0	816·0	125·40	532·0	841·1	134·80	531·3	795·7
36	130·80	540·8	784·3	128·54	535·2	817·4	125·45	531·1	839·9	135·02	530·2	794·5
42	130·75	541·4	778·4	128·75	534·4	819·0	125·20	529·7	837·0	134·99	532·0	793·4
48	130·67	540·2	776·0	128·32	533·7	820·3	125·03	530·6	836·0	134·92	530·2	790·6
54	130·23	541·6	774·2	128·14	534·5	824·0	125·19	531·2	835·8	134·72	529·7	792·7
		13^{h}.			17^{h}.			21^{h}.			1^{h}.	
0	129·23	539·6	772·2	128·37	533·0	826·8	125·02	530·1	836·8	134·68	531·5	792·4
6	128·81	540·9	770·7	127·67	534·5	829·5	125·48	530·6	836·1	135·02	534·7	790·5
12	129·01	540·7	772·1	127·72	534·7	828·9	125·59	530·3	835·1	134·77	529·0	792·9
18	129·28	540·9	771·1	127·87	534·4	832·6	125·50	530·6	835·6	134·83	531·0	795·7
24	129·47	539·9	771·4	127·70	536·1	832·0	125·55	531·2	833·2	134·60	532·2	792·6
30	129·03	539·5	771·0	129·14	535·4	832·9	125·95	530·0	833·3	134·79	530·8	791·6
36	129·00	539·0	776·6	126·85	536·6	835·0	125·72	528·6	834·8	135·33	538·4	790·8
42	128·43	537·2	775·8	126·22	535·8	834·7	125·95	528·5	832·3	135·05	531·1	792·1
48	128·35	536·2	777·1	126·05	537·0	836·3	126·13	528·2	832·2	135·32	533·9	792·5
54	128·08	534·2	776·7	126·37	538·6	837·2	126·88	527·1	825·4	135·60	538·9	793·6

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	60·8	60·3	59·7	58·9	58·1	57·6	56·6	55·8	55·8	56·0	55·8	55·9	56·9	58·1	59·3	60·7
BALANCE THERMOMETER, .	59·9	59·9	59·8	59·3	58·5	58·0	57·2	56·3	56·2	56·3	56·2	56·3	56·7	57·8	58·7	60.1

Göttingen Mean Time of Declination Observation.	MAY 27, 28.						JUNE 22, 23.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^h.			6^h.			10^h.			14^h.	
0	135·82	539·2	794·2	130·05	546·1	825·4	127·57	554·5	792·6	132·70	554·5	737·8
6	136·00	536·7	797·7	130·76	553·6	820·5	128·14	......	791·4	126·35	548·9	732·2
12	136·19	536·7	801·2	129·87	546·8	824·4	127·94	558·3	789·0	122·97	549·5	733·5
18	136·23	534·6	798·0	129·70	546·4	825·2	128·28	555·6	783·1	121·56	547·3	734·9
24	136·22	535·1	799·5	129·76	547·3	826·7	127·90	554·9	777·7	122·85	548·1	731·5
30	136·05	536·8	802·3	129·78	549·2	824·3	127·68	555·9	774·2	124·43	544·7	730·0
36	135·92	534·8	798·7	129·52	548·6	824·3	127·70	555·1	772·8	122·53	537·4	731·3
42	136·06	540·7	795·8	129·49	549·5	824·3	127·25	556·2	771·1	125·88	540·9	729·2
48	135·85	540·2	798·6	129·35	550·0	824·9	126·95	552·8	769·8	127·01	538·1	720·1
54	135·40	536·3	800·7	129·40	549·1	824·9	126·02	553·6	769·7	127·35	531·8	718·8
		3^h.			7^h.			11^h.			15^h.	
0	135·59	534·7	807·1	129·12	549·7	825·8	126·23	551·9	768·6	125·46	535·1	715·2
6	135·53	535·1	808·2	129·03	548·1	825·9	125·82	552·1	769·6	126·79	538·7	714·9
12	135·59	537·3	808·6	129·10	549·1	825·7	126·08	553·1	769·9	128·38	531·9	711·8
18	135·60	536·4	808·2	129·37	551·6	826·2	125·65	553·3	769·0	126·32	534·3	709·0
24	135·80	541·0	805·8	129·37	548·2	826·8	125·65	552·6	768·6	126·46	539·3	706·1
30	135·42	542·3	806·0	129·05	547·6	826·6	126·02	551·9	767·9	126·95	539·7	707·5
36	135·23	540·5	806·3	129·20	549·0	826·4	124·95	555·7	764·7	126·40	545·4	716·0
42	134·72	541·9	805·6	129·23	548·7	825·8	126·32	561·1	763·4	125·48	545·9	717·8
48	134·80	545·4	802·9	129·37	552·1	823·6	124·46	554·9	763·4	127·10	547·1	732·3
54	134·33	541·3	804·9	129·15	551·8	825·3	124·20	555·4	763·8	125·35	543·6	726·7
		4^h.			8^h.			12^h.			16^h.	
0	134·85	545·1	801·7	129·52	550·4	826·2	124·65	552·0	765·0	128·43	536·3	731·8
6	133·75	544·9	801·5	129·43	550·5	826·4	124·46	556·9	761·9	126·10	537·8	731·9
12	133·18	545·4	805·1	129·35	551·1	825·3	123·77	556·4	764·7	122·04	540·2	732·3
18	133·00	542·3	806·2	129·03	551·5	825·1	124·62	557·9	761·9	122·97	535·6	746·4
24	133·08	546·8	805·6	129·07	551·8	826·1	125·23	560·3	761·1	124·85	527·6	746·8
30	133·37	547·1	805·3	129·62	549·8	826·6	125·35	561·9	759·0	124·93	524·2	746·0
36	132·20	540·4	809·0	129·65	547·6	825·6	126·55	560·2	758·4	124·80	545·6	744·2
42	132·20	542·1	809·4	129·50	550·0	823·8	126·26	565·6	755·1	123·65	532·9	739·5
48	131·75	540·0	811·4	129·62	552·1	818·5	128·50	568·5	751·5	124·39	530·0	739·0
54	131·82	542·2	811·4	129·58	549·8	822·7	130·80	569·7	754·5	122·77	534·7	748·3
		5^h.			9^h.			13^h.			17^h.	
0	131·58	543·3	811·0	129·30	550·2	824·0	133·70	562·8	753·7	125·19	537·6	751·9
6	131·80	548·5	810·2	129·17	551·0	823·4	133·11	547·9	754·1	123·11	537·5	753·0
12	131·47	550·5	812·4	129·65	550·4	823·1	127·15	549·7	743·0	122·50	531·0	754·6
18	131·12	549·7	813·3	129·65	548·7	822·7	124·42	550·7	742·2	122·87	524·1	759·8
24	130·85	548·8	814·5	129·55	547·2	824·7	123·07	555·4	743·3	124·00	531·9	759·6
30	130·60	549·6	816·6	129·65	546·9	823·9	123·50	552·7	749·9	125·02	531·7	763·5
36	130·27	545·2	819·5	129·62	549·6	822·0	123·24	550·5	749·9	125·28	530·2	765·2
42	130·35	544·2	822·2	129·62	550·1	822·8	123·11	559·9	747·6	127·01	528·2	768·5
48	130·32	545·3	824·2	129·62	551·3	824·4	125·59	560·9	747·6	128·30	522·7	772·9
54	130·35	546·6	825·5	129·83	550·0	829·4	127·60	556·5	741·6	129·34	516·2	775·4

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	61·3	62·2	62·7	63·0	63·5	63·7	63·7	62·9	62·0 ?	64·4	64·2	63·6	63·0	61·6	61·0	60·2	59·4
BALANCE THERMOMETER,	60·5	61·4	62·0	62·3	62·7	62·7	62·8	62·2	61·7 ?	65·2	64·2	63·7	62·7	62·2	61·7	60·7	59·7

June 22^d—23^d, 1842. The clock in the Magnetic Observatory was not going well during this term, owing to the lever of the 30^s bell affecting the motion of the pendulum. The following were the errors during the term: 22^d 9^h, error 0^s; 23^d 0^h 30^m, error -4^s, clock put fast 2^s; 23^d 2^h, error -5^s, clock put fast 2^s, and 30^s bell stopped. The error of $+2^s$ continued throughout the rest of the term.

Göttingen Mean Time of Declination Observation.	JUNE 22, 23.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18^h.			22^h.			2^h.			6^h.	
0	130·20	518·2	763·0	129·52	518·7	809·0	133·02	548·5	796·2	129·43	553·3	809·1
6	132·91	521·3	767·7	130·12	516·7	806·5	132·80	545·9	796·8	128·78	550·6	811·0
12	131·27	525·9	763·5	127·45	525·3	802·0	132·73	542·6	798·9	128·47	552·4	812·6
18	131·15	521·6	757·0	128·20	522·6	802·7	131·62	538·1	799·6	128·75	551·4	813·1
24	132·80	516·9	754·9	127·10	525·5	799·7	131·72	542·0	800·2	128·68	553·4	812·3
30	131·82	521·0	749·5	128·63	521·4	798·5	131.78	540·9	801·8	128·97	560·5	809·8
36	131·29	520·6	756·3	128·10	521·7	797·6	132·17	541·4	804·0	128·83	563·6	807·7
42	129·78	522·9	768·9	127·12	523·3	795·4	131·83	540·7	806·2	128·78	562·9	812·2
48	130·89	521·2	775·6	127·01	526·6	795·6	131·50	545·0	804·7	128·30	563·5	814·0
54	131·07	522·3	……	127·17	527·5	792·3	131·00	542·4	809·3	128·55	565·9	814·4
		19^h.			23^h.			3^h.			7^h.	
0	130·83	522.2	773·2	127·81	528·4	791·4	131·23	544·1	810·6	128·74	567·6	821·4
6	129·82	522·3	774·9	127·98	528·6	791·9	130·63	545·6	808·0	128·21	559·7	826·8
12	128·97	518·9	776·3	128·63	527·9	790·2	130·58	546·0	810·5	128·17	559·1	830·0
18	130·07	523·8	775·3	128·21	528·1	786·5	130·95	554·5	809·4	127·95	560·4	833·2
24	129·96	526·2	770·9	128·38	528·2	784·9	131·15	552·3	812·9	127·52	563·4	838·5
30	128·92	525·6	769·5	128·57	529·2	783·9	130·72	547·0	815·7	127·28	562·6	842·3
36	124·24	522·6	767·8	129·00	532·2	782·8	130·73	545·0	816·1	126·15	566·4	845·3
42	126·39	529·5	773·4	129·93	527·9	783·6	130·50	546·1	815·5	125·00	561·4	857·0
48	130·73	521·3	773·1	………	526·5	792·2	131·09	548·3	813·5	125·80	555·8	861·2
54	125·30	515·2	781·7	132·22	525·4	791·6	130·92	547·8	810·9	121·27	563·7	856·3
		20^h.			0^h.			4^h.			8^h.	
0	123·02	517·2	781·4	131·52	541·1	789·1	131·03	546·1	810·6	122·85	548·0	849·6
6	129·05	516·9	787·5	131·27	535·5	789·8	131·10	546·4	809·3	116·95	571·2	843·3
12	124·35	518·2	788·5	131·76	532·6	789·9	130·95	545·9	809·1	120·60	570·9	844·0
18	126·37	519·7	788·6	135·26	523·3	795·8	130·70	544·5	807·7	121·20	565·6	842·4
24	126·63	518·0	790·2	132·38	523·8	799·3	130·60	544·7	808·5	121·25	565·2	840·8
30	126·66	519·1	787·9	135·20	522·5	800·9	130·53	545·8	805·8	122·27	563·7	839·6
36	127·72	514·7	794·6	135·55	526·5	799·6	130·18	548·3	801·8	122·24	561·8	838·7
42	127·77	515·1	793·9	135·72	521·6	798·5	130·18	550·6	804·4	122·97	559·8	839·7
48	129·52	518·1	797·0	135·72	528·2	799·8	130·00	549·3	802·8	124·45	554·9	840·9
54	127·97	522·0	791·8	135·35	529·3	802·5	130·00	547·5	803·3	124·88	548·2	839·2
		21^h.			1^h.			5^h.			9^h.	
0	129·35	521·3	793·6	137·23	532·7	803·5	129·73	549·2	804·6	123·71	549·0	837·9
6	129·72	516·4	798·2	136·45	525·2	804·7	129·95	555·0	804·3	124·52	547·4	839·3
12	129·00	516·3	800·2	136·45	536·0	802·2	129·55	554·4	802·7	125·25	550·8	836·4
18	126·53	512·9	798·4	135·46	534·6	803·6	129·62	556·5	803·8	126·25	550·2	834·8
24	124·17	513·7	797·2	135·59	533·8	803·0	129·17	551·8	807·4	126·77	549·8	832·1
30	124·22	514·2	800·3	134·17	537·0	801·1	129·05	550·2	808·0	127·20	549·4	831·2
36	122·22	518·2	801·2	134.07	537·0	800·5	129·00	554·4	808·1	127·14	551·5	827·6
42	124·83	516·3	803·3	133·31	538·6	798·8	129·28	555·8	808·1	127·63	551·7	827·2
48	126·26	520·1	801·5	132·87	542·5	796·8	129·65	560·6	804·6	126·35	551·7	823·4
54	127·85	520·2	800·3	132·93	545·4	796·1	129·98	560·3	808·3	125·99	554·6	821·6

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	59·0	58·9	58·6	58·7	59·7	60·9	62·1	63·2	64·7	66·0	66·9	67·5	67·3	66·7	65·5	64·9	65·2
BALANCE THERMOMETER,	59.5	59·2	59·2	59·2	60·0	60·7	61·7	62·7	65·0	66·3	66·3	66·4	66·3	66·2	66·3	64·8	64·2

June 22d—23d. See note on page 38.

Göttingen Mean Time of Declination Observation.	JULY 20, 21.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10ʰ.			14ʰ.			18ʰ.			22ʰ.	
0	116·77	536·7	814·4	125·35	540·0	751·2	123·07	531·3	800·6	123·22	527·4	796·4
6	117·57	536·4	813·0	124·99	541·4	752·3	122·55	530·0	799·8	123·97	528·1	796·7
12	118·52	538·3	813·9	125·62	540·8	753·4	122·04	530·1	798·5	123·87	526·7	795·0
18	120·20	538·3	809·7	125·63	539·8	753·9	122·04	530·8	798·7	123·77	526·2	793·3
24	120·25	538·8	805·7	125·65	539·5	754·2	122·90	529·7	799·7	124·07	526·3	792·9
30	120·35	540·7	801·4	125·52	538·5	752·6	122·51	530·1	801·1	124·20	526·4	792·5
36	121·02	543·0	798·5	124·27	538·8	753·9	122·30	529·3	802·5	124·24	525·2	790·4
42	122·60	539·9	799·1	123·97	539·6	754·6	122·07	530·2	804·7	124·30	525·1	790·4
48	123·70	539·8	797·7	123·60	539·6	754·6	121·93	531·5	802·7	124·62	526·3	787·6
54	123·68	538·3	797·1	123·60	538·5	755·8	122·04	532·6	802·6	124·77	526·6	786·5
		11ʰ.			15ʰ.			19ʰ.			23ʰ.	
0	124·50	536·7	795·4	122·93	537·1	757·7	121·70	532·7	804·0	125·22	526·9	785·2
6	123·58	535·1	792·9	122·27	537·6	758·2	121·98	532·4	802·8	125·00	523·9	782·7
12	122·28	535·9	791·1	121·77	537·7	761·5	121·70	532·9	803·9	124·35	527·8	781·1
18	121·65	534·4	792·0	121·58	538·0	762·5	121·52	532·8	801·9	125·43	528·7	781·4
24	121·10	535·2	790·4	121·35	536·2	764·4	121·10	533·7	804·1	125·68	529·4	781·6
30	120·78	535·9	790·4	121·25	534·6	766·8	121·40	534·2	804·7	126·02	529·3	780·8
36	120·78	535·5	790·7	121·58	534·9	768·6	121·58	532·2	803·5	126·45	529·8	781·1
42	121·18	534·3	791·6	122·35	534·1	771·1	121·75	532·3	802·8	126·72	529·7	781·3
48	121·77	535·1	791·7	122·78	534·0	771·1	121·70	532·1	802·1	126·85	531·5	780·6
54	122·10	535·8	790·1	123·08	534·7	773·7	121·12	532·6	803·6	127·28	534·7	780·2
		12ʰ.			16ʰ.			20ʰ.			0ʰ.	
0	122·60	534·8	792·9	123·60	535·5	774·9	120·93	530·8	802·9	127·92	534·6	782·3
6	122·38	535·1	790·8	123·84	535·5	774·6	120·80	530·0	804·7	128·74	532·8	784·4
12	122·87	534·4	791·6	123·98	535·1	775·4	120·98	529·8	804·8	129·14	534·5	783·1
18	122·80	534·1	791·1	123·73	536·2	776·3	121·47	530·1	805·7	129·65	534·1	783·6
24	123·47	534·4	790·0	123·68	537·0	778·8	121·02	530·6	804·0	130·10	532·9	784·5
30	124·48	538·6	787·7	124·53	533·7	779·4	121·71	526·9	804·7	130·33	533·2	784·5
36	127·74	543·7	781·3	124·37	538·5	784·1	119·78	530·8	803·3	130·75	533·6	785·0
42	129·69	545·3	772·9	124·77	535·5	784·5	120·35	531·4	803·6	131·45	533·9	786·8
48	129·07	545·0	765·6	124·27	535·5	787·0	121·05	530·3	803·7	131·63	534·0	786·8
54	128·07	544·7	760·0	124·18	536·0	789·6	121·30	529·0	804·4	132·11	532·9	787·5
		13ʰ.			17ʰ.			21ʰ.			1ʰ.	
0	127·94	543·2	755·4	124·00	532·8	791·7	121·12	528·5	802·6	132·18	531·9	788·2
6	127·85	541·7	752·0	123·51	534·4	792·1	121·00	528·5	801·5	131·92	533·8	787·7
12	127·48	539·7	750·2	123·42	534·2	792·3	121·43	528·0	801·0	131·96	535·4	788·3
18	127·23	538·3	750·3	123·22	533·8	795·9	121·49	528·6	800·4	132·28	533·4	790·3
24	126·22	538·9	748·3	123·40	532·4	797·9	121·84	528·7	799·5	132·11	532·6	790·8
30	125·62	539·3	747·1	123·73	532·1	802·0	122·25	528·7	799·0	132·42	534·8	790·7
36	125·12	540·8	746·4	124·40	531·3	800·3	122·84	528·4	799·0	132·65	538·2	790·6
42	124·88	541·1	748·7	123·80	532·7	800·6	122·91	527·6	797·4	132·87	538·9	792·4
48	124·95	540·3	751·0	123·42	531·4	799·9	122·98	528·0	796·7	132·65	539·0	793·8
54	125·23	540·5	751·2	123·42	530·9	799·3	123·38	526·8	795·8	132·35	540·5	794·1

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	58·2	58·4	58·1	58·6	58·9	59·1	59·0	59.0	58·9	59·5	59·1	59·4	59·8	60·6	61·6	62·4
BALANCE THERMOMETER, .	58·2	58.3	58·7	58·7	58·7	58·7	58·7	58·7	58·7	59·0	59·2	59·3	59·4	60·1	60·8	61·7

Göttingen Mean Time of Declination Observation.	JULY 20, 21.						AUGUST 26, 27.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^h.			6^h.			10^h.			14^h.	
0	132·38	538·9	797·0	128·48	546·0	791·7	123·11	551·8	774·3	120·32	544·7	685·0
6	132·60	539·2	795·4	128·41	546·0	791·8	123·53	548·5	772·5	120·35	541·6	688·8
12	132·30	533·8	798·0	128·30	546·1	791·1	123·85	551·1	766·3	120·72	536·7	693·6
18	132·70	533·4	798·1	127·94	546·1	793·3	125·46	553·3	754·7	120·32	533·6	700·9
24	132·88	533·0	796·6	127·54	547·6	797·7	124·82	546·4	752·7	120·83	532·9	703·3
30	132·80	532·7	793·8	127·15	546·6	801·5	123·60	543·5	752·1	121·49	531·2	706·1
36	132·97	535·6	790·7	127·08	547·2	801·8	122·93	544·7	745·7	122·42	529·6	712·7
42	132·90	536·4	790·6	127·12	547·5	801·1	123·10	544·7	746·5	124·57	528·7	711·8
48	132·73	535·7	790·2	127·40	548·0	800·8	123·10	541·3	746·4	125·88	528·3	708·9
54	132·53	535·4	789·4	126·97	548·4	801·3	122·30	540·5	748·8	125·63	531·5	709·0
		3^h.			7^h.			11^h.			15^h.	
0	132·17	536·6	788·8	126·57	548·1	802·3	122·30	542·8	750·8	126·98	538·1	708·1
6	131·47	534·8	788·9	126·32	548·2	803·5	122·57	543·9	747·5	127·41	538·8	706·3
12	131·16	537·6	789·4	126·08	547·1	805·2	122·17	545·4	747·4	127·00	539·1	709·8
18	130·35	540·3	788·3	126·12	546·7	806·4	123·87	549·4	742·2	128·12	537·8	709·7
24	129·65	541·0	788·7	125·82	547·0	807·8	125·79	551·6	740·3	128·15	536·6	709·9
30	129·50	544·5	788·9	125·55	548·0	808·7	129·21	552·2	731·1	127·27	536·1	709·0
36	130·38	550·8	789·4	125·59	547·0	809·4	132·51	548·6	721·8	125·97	536·8	709·4
42	129·83	546·0	792·6	125·70	547·7	810·3	133·13	544·2	709·4	125·00	538·4	710·9
48	129·65	543·8	795·4	125·80	547·7	811·0	131·07	541·7	700·8	124·59	539·0	715·6
54	129·82	543·0	798·6	125·99	548·5	809·6	128·37	543·1	695·2	123·55	539·2	718·2
		4^h.			8^h.			12^h.			16^h.	
0	129·78	542·5	799·9	126·33	548·4	808·1	125·79	546·8	691·2	122·75	540·0	719·1
6	129·85	541·2	799·8	126·08	545·9	805·9	123·02	548·7	688·6	122·87	539·9	723·3
12	130·02	540·6	801·7	125·25	546·0	805·2	122·70	549·4	685·3	122·97	539·6	723·9
18	130·29	542·5	800·8	124·46	547·8	806·9	120·92	545·1	688·3	122·10	541·0	727·7
24	130·32	544·7	799·8	124·25	548·7	807·0	119·62	543·0	689·7	122·40	540·3	730·3
30	130·55	546·4	799·3	124·73	547·8	810·8	118·90	543·0	692·3	122·17	539·3	733·4
36	130·32	545·2	800·1	125·23	546·5	811·4	118·10	543·2	697·6	121·88	539·4	735·1
42	130·47	542·8	800·5	125·62	544·9	809·9	117·47	541·3	701·7	121·65	540·3	737·2
48	130·53	540·4	799·2	125·68	544·4	808·1	118·21	538·5	702·2	121·77	540·1	738·7
54	130·33	543·7	798·5	125·65	544·7	808·5	119·60	536·3	705·2	121·58	540·2	739·0
		5^h.			9^h.			13^h.			17^h.	
0	130·52	546·2	799·3	125·62	542·7	807·9	120·27	532·2	710·3	122·20	540·2	740·0
6	130·47	545·7	798·2	125·62	542·7	809·7	122·80	532·1	712·2	122·30	540·7	744·5
12	129·96	544·0	797·1	125·97	541·1	808·7	124·77	536·7	708·4	121·77	541·3	744·4
18	129·69	544·5	797·3	126·10	543·3	808·5	125·70	540·1	705·9	122·20	539·7	745·5
24	129·27	547·1	794·8	126·28	542·2	808·1	128·00	542·5	701·8	121·87	539·4	747·5
30	129·32	547·3	796·4	126·23	541·9	807·5	128·77	545·0	698·5	121·65	540·0	747·5
36	129·40	547·8	793·8	126·15	541·1	807·5	127·92	548·9	691·3	121·58	539·0	749·0
42	129·34	547·3	792·9	126·22	540·9	808·0	126·28	549·4	685·9	121·50	537·8	749·4
48	129·30	547·1	793·9	126·33	543·7	803·8	124·27	548·0	682·8	121·29	537·7	750·8
54	128·77	546·1	792·3	126·17	542·7	803·0	122·02	546·5	683·6	121·25	537·5	752·5

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	63·2	63·5	63·6	63·7	63·7	63·7	63·7	61·8	60·6	60·8	61·1	61·6	61·7	61·5	61·5	61·4	61·4
BALANCE THERMOMETER,	62·3	62·7	62·9	63·1	62·9	63·2	63·2	61·9	60·9	61·0	61·2	61·7	61·7	61·7	61·8	61·7	61·7

Göttingen Mean Time of Declination Observation.	AUGUST 26, 27.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18h.			22h.			2h.			6h.	
0	121·20	537·1	756·2	122·22	531·2	765·3	131·45	542·7	754·1	126·08	554·4	759·5
6	120·92	536·5	756·4	123·53	529·0	764·5	131·07	544·2	755·0	125·93	554·4	760·6
12	120·72	535·6	758·5	123·42	528·5	765·8	131·03	544·7	755·4	125·55	549·2	762·2
18	120·93	534·4	758·6	122·95	528·7	760·7	130·73	543·0	756·4	125·45	552·8	759·9
24	120·73	534·7	762·8	123·48	529·0	760·7	130·05	542·3	756·2	125·28	553·8	760·3
30	120·85	535·0	764·8	123·40	528·4	759·7	129·80	543·7	756·0	125·42	555·8	760·0
36	120·83	534·1	767·7	123·91	527·6	760·3	129·78	544·2	756·5	125·15	554·1	763·2
42	120·36	534·0	767·4	124·15	527·4	760·4	129·78	549·6	757·6	125·10	552·0	761·8
48	120·85	532·2	769·4	124·57	525·6	760·4	130·09	554·7	757·8	125·25	555·5	760·7
54	121·49	530·9	769·3	124·62	523·0	759·7	130·38	554·4	759·1	125·46	554·7	761·7
		19h.			23h.			3h.			7h.	
0	121·80	528·5	770·7	124·85	525·8	761·9	129·18	550·5	760·5	125·45	553·2	762·2
6	122·67	526·2	771·8	124·79	525·2	761·3	129·35	549·2	760·6	125·50	554·0	762·2
12	123·70	526·3	771·1	125·37	524·7	760·6	129·76	548·8	762·3	125·59	554·7	762·1
18	124·52	525·5	768·2	125·63	523·5	761·6	129·52	549·5	762·9	125·48	552·3	764·8
24	125·35	526·4	767·2	126·39	523·0	760·5	129·87	551·7	762·1	125·42	554·0	764·7
30	124·79	529·7	763·0	126·63	523·0	760·4	129·95	551·1	763·6	125·55	554·7	764·3
36	124·39	531·0	761·4	126·85	524·6	759·6	129·76	547·9	763·7	125·63	554·7	764·6
42	124·10	532·2	760·9	127·28	526·5	759·4	129·21	546·1	763·6	125·52	554·8	763·8
48	123·82	532·1	760·4	127·70	526·7	758·5	129·21	547·9	763·7	125·22	553·3	764·6
54	123·53	532·6	759·2	128·23	522·7	758·4	129·18	546·6	760·0	125·02	552·5	765·6
		20h.			0h.			4h.			8h.	
0	123·00	533·8	758·1	127·70	522·6	756·7	129·58	554·5	759·2	125·30	550·7	767·0
6	122·93	535·2	756·9	128·08	525·8	755·9	128·95	551·9	751·9	125·50	550·3	767·2
12	123·15	537·1	756·2	128·80	527·6	753·3	128·54	553·9	749·6	125·60	548·6	767·6
18	123·40	535·7	755·5	129·07	528·6	750·6	128·77	555·3	751·0	125·55	548·6	768·2
24	122·95	536·1	754·4	129·25	527·9	748·7	128·68	556·3	752·5	125·62	550·4	768·8
30	123·11	536·0	752·3	129·52	528·7	747·8	128·34	555·7	752·7	125·32	550·1	767·1
36	122·65	535·1	754·1	129·35	528·4	744·1	128·17	557·9	754·5	125·15	549·5	766·6
42	122·62	535·1	754·2	129·47	529·3	741·7	127·85	556·5	755·7	125·62	549·8	764·1
48	122·28	535·8	754·5	129·38	532·9	739·8	127·63	557·1	755·7	125·62	551·0	759·7
54	121·80	535·4	754·9	130·27	536·4	738·7	127·60	557·4	753·8	125·62	550·0	759·5
		21h.			1h.			5h.			9h.	
0	122·07	533·1	751·9	131·18	537·6	740·3	127·43	556·9	755·3	125·92	548·1	759·9
6	121·73	531·1	759·4	131·33	536·7	738·5	127·08	553·5	756·7	125·93	547·7	756·2
12	121·90	532·8	760·5	131·65	535·0	741·7	126·80	554·8	756·3	125·83	549·9	753·2
18	121·80	532·3	763·9	131·09	535·0	741·8	126·32	552·2	757·1	125·77	548·7	752·7
24	121·98	532·2	765·5	131·30	536·4	742·7	126·28	552·6	757·7	125·53	546·3	751·7
30	122·24	532·5	766·6	131·47	537·6	743·7	126·28	554·2	762·1	125·46	553·3	747·9
36	122·82	531·0	768·1	131·47	540·0	745·5	126·32	554·6	761·9	125·65	553·4	745·2
42	123·20	532·1	768·7	131·35	539·0	747·0	126·35	554·7	761·2	125·73	554·2	742·5
48	123·20	531·1	768·1	131·40	540·5	749·7	126·40	554·1	760·2	125·62	552·6	743·7
54	123·17	530·0	767·6	131·33	541·8	751·8	126·28	553·7	759·8	125·26	550·7	743·8

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	61·1	60·7	60·5	60·4	60·7	60·8	62·7	63·3	64·4	65·2	66·0	66·7	67·4	64·9	64·0	64·2	64·3
BALANCE THERMOMETER,	61·7	61·1	60·7	60·5	60·8	60·9	62·5	63·2	63·9	64·5	65·3	65·8	66·3	64·5	63·7	64·1	64·2

Göttingen Mean Time of Declination Observation.	SEPTEMBER 21, 22.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10h.			14h.			18h.			22h.	
0	122·60	546·2	746·1	128·78	530·6	660·8	129·92	537·6	755·3	135·59	521·7	761·6
6	122·75	539·5	747·0	126·39	534·3	669·1	129·95	538·2	756·9	135·68	519·9	766·2
12	122·93	533·4	748·8	124·53	537·6	676·1	130·42	540·0	756·7	133·45	522·6	767·7
18	121·42	542·7	748·3	125·85	536·6	686·9	131·05	540·1	758·6	135·57	520·9	770·3
24	121·16	544·2	745·8	126·22	534·9	693·1	131·12	539·5	757·1	134·95	519·2	771·5
30	120·02	550·3	741·4	125·28	537·0	697·2	131·35	540·1	754·8	134·82	519·3	770·3
36	121·10	552·3	739·8	125·63	538·5	702·5	131·05	540·9	754·8	135·62	520·4	770·3
42	122·88	547·6	738·5	125·83	536·8	708·8	130·85	540·0	755·4	136·50	522·7	770·7
48	122·51	544·6	736·0	126·19	535·5	715·7	130·69	539·9	757·9	137·35	523·4	772·7
54	123·60	539·4	740·4	126·59	534·5	722·0	130·52	539·4	760·2	137·48	522·2	769·3
		11h.			15h.			19h.			23h.	
0	122·97	538·2	740·2	126·52	535·6	726·4	130·15	538·6	762·6	136·30	528·2	768·1
6	122·85	537·0	743·3	126·28	537·0	732·5	130·42	539·7	764·4	137·83	528·4	767·6
12	123·28	536·8	745·1	126·62	537·8	737·0	130·70	538·9	767·3	137·88	532·8	768·7
18	124·40	536·4	743·2	126·94	537·7	743·9	130·83	537·8	768·6	137·32	530·9	763·4
24	124·88	529·8	740·0	127·41	537·5	748·2	130·78	536·6	769·7	137·95	530·5	764·0
30	123·88	519·3	748·6	128·57	537·0	753·0	131·05	537·4	769·9	138·34	530·5	764·6
36	125·52	524·2	749·8	128·57	537·7	758·1	130·45	536·7	771·2	138·37	531·9	762·9
42	127·38	525·8	750·5	128·85	538·8	760·9	130·78	536·8	772·4	138·47	532·7	760·8
48	128·30	527·2	751·5	128·35	540·4	761·9	130·52	535·4	772·9	139·40	529·8	760·2
54	128·03	528·7	756·2	128·50	540·9	761·8	130·98	535·1	773·1	139·76	529·0	758·6
		12h.			16h.			20h.			0h.	
0	128·97	530·2	762·0	128·07	542·5	762·6	130·15	534·3	773·7	139·55	531·9	755·8
6	128·97	533·0	759·2	127·67	542·7	763·1	131·02	534·9	772·2	140·13	536·2	755·7
12	127·95	538·7	760·8	127·55	541·6	765·1	131·78	535·3	771·6	140·43	530·1	754·2
18	126·97	441·7	759·4	127·28	543·6	765·6	132·17	535·3	770·3	139·43	533·8	752·4
24	127·30	542·6	753·0	128·88	541·9	765·7	132·84	333·8	770·5	139·87	535·1	751·1
30	126·72	541·5	751·0	129·43	541·5	764·8	133·50	530·6	770·3	140·36	535·0	750·2
36	126·59	538·0	747·3	127·97	542·5	764·0	134·33	528·4	770·1	140·02	536·5	750·0
42	126·62	541·9	740·4	128·88	544·2	764·8	134·40	528·1	767·5	140·53	538·4	747·3
48	130·38	548·7	729·1	129·12	542·8	763·7	134·58	528·0	763·8	140·53	538·8	746·9
54	129·52	546·6	724·1	128·57	544·7	764·4	134·25	527·5	765·5	140·69	540·2	748·1
		13h.			17h.			21h.			1h.	
0	127·17	554·4	726·5	128·80	545·6	758·7	133·70	527·0	764·3	141·18	539·7	749·0
6	131·18	560·7	725·5	129·15	545·5	757·2	133·50	525·0	762·1	140·42	539·7	748·5
12	136·40	555·6	713·7	128·38	546·8	756·0	132·97	526·9	761·1	141·73	543·5	746·7
18	138·27	543·1	693·6	128·72	547·3	754·7	132·88	526·1	761·9	141·02	541·1	746·8
24	137·70	537·0	674·6	128·87	542·5	753·8	132·60	523·3	760·5	141·05	542·4	748·1
30	136·40	531·0	660·8	129·49	541·8	752·4	132·28	525·5	760·7	141·02	543·4	746·1
36	134·68	526·6	650·3	129·87	541·7	751·3	133·37	523·3	760·7	141·65	541·5	748·4
42	132·25	525·3	641·5	129·92	538·2	752·1	134·60	520·7	761·8	140·40	544·5	749·3
48	130·47	528·2	644·0	130·90	538·9	751·4	134·37	520·3	761·7	140·18	542·7	750·9
54	129·65	530·9	650·3	129·55	537·1	752·3	134·73	520·3	761·7	140·38	545·9	750·8

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	57·8	57·6	57·1	56·8	58·1	58·1	58·7	60·6	61·0	60·5	59·9	59·7	59·6	60·6	61·5	61·8
BALANCE THERMOMETER, .	57·9	58·2	57·9	57·9	59·2	59·2	60·2	61·9	61·9	61·4	61·1	60·7	60·5	61·7	62·7	62·9

Göttingen Mean Time of Declination Observation.	SEPTEMBER 21, 22.						OCTOBER 19, 20.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
	2^h.			6^h.			10^h.			14^h.		
0	140·23	548·2	754·4	133·07	546·8	780·4	122·90	573·1	771·7	130·42	540·1	712·3
6	140·65	544·0	758·2	133·64	553·1	777·9	129·40	572·4	748·8	129·82	542·3	715·1
12	139·47	542·4	761·7	132·71	551·5	779·9	131·38	554·7	738·5	129·34	542·7	717·5
18	139·42	540·4	762·3	132·05	545·0	781·3	130·32	539·0	738·3	128·90	543·6	719·4
24	138·12	540·1	768·2	132·50	547·6	779·3	125·90	534·9	740·8	128·28	544·0	719·8
30	137·37	540·6	766·5	133·50	551·0	778·2	122·47	536·9	741·2	127·90	542·6	721·8
36	135·99	543·9	766·8	134·33	547·7	778·2	119·38	544·2	743·8	128·63	541·1	723·2
42	136·13	545·4	768·1	134·47	549·9	777·0	118·03	547·5	744·7	128·88	541·8	724·2
48	135·82	547·2	767·9	134·57	547·9	778·5	116·26	554·0	743·8	129·12	541·0	725·4
54	136·30	552·8	768·6	134·95	539·1	783·9	117·54	554·7	745·8	129·34	540·8	725·9
	3^h.			7^h.			11^h.			15^h.		
0	137·02	552·3	769·5	133·50	536·2	791·2	119·00	549·2	751·4	129·35	540·8	726·6
6	137·72	554·4	771·0	132·50	539·5	796·7	120·38	543·1	754·9	128·54	542·8	725·5
12	137·70	556·6	774·0	132·90	536·1	802·6	120·82	542·8	755·2	128·85	541·2	726·5
18	136·93	546·8	776·1	131·78	534·7	800·1	121·16	543·1	756·6	128·45	540·3	728·0
24	136·79	547·4	775·2	124·55	553·9	791·0	123·28	541·4	756·1	128·61	541·7	729·7
30	136·52	546·8	775·3	111·10	579·8	776·8	124·75	539·0	756·4	128·94	540·3	730·7
36	136·59	550·9	773·4	115·68	573·5	765·8	124·82	539·2	756·3	128·47	541·2	731·6
42	137·34	553·6	775·3	123·27	563·9	757·9	124·72	540·7	754·4	128·60	541·3	731·9
48	136·83	550·2	777·4	132·70	539·3	759·4	124·97	541·4	753·0	128·45	541·6	732·7
54	136·77	553·9	778·7	134·65	524·2	761·4	124·72	541·8	752·2	128·14	541·3	733·6
	4^h,			8^h.			12^h.			16^h.		
0	136·95	549·4	780·4	131·33	520·5	756·1	123·75	542·1	750·5	127·57	541·2	734·9
6	136·46	547·5	782·0	127·58	532·7	755·5	123·65	541·2	750·5	126·90	540·5	736·3
12	136·42	552·4	782·0	128·38	530·5	757·0	123·35	540·5	746·5	126·66	539·7	738·2
18	136·15	549·0	782·6	126·35	533·0	757·9	122·75	538·9	748·3	126·48	538·9	739·9
24	135·68	546·4	783·0	127·77	536·0	761·4	123·13	538·1	747·1	126·06	538·3	742·2
30	135·53	544·7	780·5	129·56	535·0	764·0	123·95	537·5	747·7	126·06	537·7	746·0
36	135·62	551·1	779·7	129·69	532·8	766·8	124·24	538·0	747·1	126·59	538·9	748·7
42	135·48	552·6	784·8	128·75	533·6	767·8	127·03	542·2	746·5	127·63	539·6	749·3
48	134·60	545·8	782·8	128·65	535·4	769·0	130·67	543·2	743·0	127·54	539·1	750·0
54	134·58	544·6	786·6	129·08	536·4	769·9	131·95	543·1	736·5	127·60	538·5	749·4
	5^h.			9^h.			13^h.			17^h.		
0	134·42	544·5	786·0	129·63	537·0	770·3	131·50	543·4	733·0	126·97	537·7	750·1
6	134·72	544·8	783·2	129·41	539·6	769·6	132·13	545·0	730·2	126·98	537·9	750·9
12	134·13	545·6	782·8	129·50	538·3	768·2	136·55	550·4	721·1	127·60	539·1	749·4
18	133·31	546·2	777·7	129·40	537·9	768·6	138·23	548·8	714·2	127·63	539·3	749·3
24	133·93	546·6	777·6	128·94	539·5	769·7	137·60	546·3	705·3	127·68	539·1	748·3
30	133·80	544·4	775·4	129·08	536·7	770·5	136·15	545·5	698·9	127·68	539·3	749·6
36	133·18	545·3	776·6	129·27	538·3	770·4	134·00	543·4	695·7	127·80	539·6	750·7
42	133·35	546·9	772·7	………	538·9	768·5	132·70	540·9	695·5	127·65	539·6	750·4
48	133·37	546·0	776·0	129·07	545·7	760·1	131·43	540·5	697·5	128·14	540·3	752·5
54	133·55	547·1	778·0	128·00	547·8	753·5	130·75	540·1	706·7	128·00	538·6	752·4

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	62·5	62·5	61·9	61·4	60·6	59·3	59·0	58·6	58·3	46·6	48·5	50·6	51·9	52·3	51·8	50·6	49·8
BALANCE THERMOMETER,	62·5	63·2	62·9	62·7	61·7	60·4	60·4	59·9	59·3	49·1	49·9	52·0	53·4	53·8	53·3	52·2	51·8

Göttingen Mean Time of Declination Observation.	OCTOBER 19, 20.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18^{h}.			22^{h}.			2^{h}.			6^{h}.	
0	127·95	538·4	750·0	126·43	533·8	770·9	135·86	545·7	760·2	129·60	545·7	765·6
6	126·60	541·4	753·5	127·32	532·9	770·4	136·28	544·1	763·9	129·69	544·0	763·2
12	127·63	538·7	753·3	127·08	534·7	767·6	137·41	546·1	763·5	129·41	547·5	760·3
18	128·03	537·8	760·2	128·47	535·3	763·8	137·37	544·9	763·0	130·07	549·4	763·5
24	128·14	536·8	759·9	129·87	532·3	763·7	136·62	544·6	760·5	130·09	549·0	765·3
30	127·18	539·6	761·0	128·88	532·6	761·0	136·43	544·6	760·1	130·07	550·3	763·2
36	127·17	538·5	760·6	130·15	529·5	761·0	136·35	545·0	758·9	130·32	547·4	756·7
42	127·07	541·0	763·5	130·40	528·7	759·2	136·22	544·8	758·9	130·36	547·4	751·1
48	128·25	538·7	763·7	130·38	526·1	760·8	136·22	545·5	757.7	129·83	548·1	749·6
54	127·83	539·3	765·1	130·42	527·9	757·1	136·22	547·7	759·5	130·13	549·5	747·4
		19^{h}.			23^{h}.			3^{h}.			7^{h}.	
0	127·98	538·5	763·7	131·22	529·4	755·7	136·10	548·6	758·1	130·40	546·2	747·7
6	127·30	536·8	764·8	131·65	528·5	755·6	135·90	549·1	757·9	130·02	543·4	751·8
12	127·12	536·8	761·0	131·65	527·3	754·7	135·72	548·9	......	126·22	536·5	752·4
18	127·70	535·1	763·1	131·65	529·9	753·4	135·68	548·5	759·9	122·58	545·0	753·4
24	127·80	533·8	765·3	131·98	529·2	753·6	135·60	550·4	760·0	123·40	546·2	759·7
30	127·40	533·7	765·9	132·37	528·8	753·1	135·39	548·4	759·3	123·91	547·8	761·3
36	127·47	532·5	767·7	132·90	529·4	753·1	134·47	546·8	759·7	124·92	547·6	759·2
42	126·79	532·6	768·0	133·42	530·2	752·3	134·28	547·9	760·3	126·03	546·3	755·8
48	126·68	534·1	771·6	133·67	531·6	749·7	133·84	547·0	761·0	127·47	545·0	750·9
54	126·25	535·6	773·5	134·28	530·1	752·5	133·57	547·3	761·6	127·14	545·7	748·6
		20^{h}.			0^{h}.			4^{h}.			8^{h}.	
0	126·15	536·4	775·6	134·99	531·8	755·1	133·20	547·6	765·3	128·30	545·4	749·1
6	126·13	536·5	775·3	135·43	532·9	754·8	133·08	548·7	766·3	128·07	543·1	747·2
12	126·35	536·7	776·6	136·15	536·0	755·5	133·00	548·9	766·1	127·95	545·0	744·2
18	125·83	536·5	775·8	137·02	536·0	756·3	132·93	548·3	769·6	127·83	541·2	744·4
24	124·97	537·4	776·9	136·13	531·7	758·4	132·31	547·7	766·0	126·57	544·5	743·3
30	124·62	536·7	778·8	136·10	530·5	760·3	132·10	548·4	762·6	126·94	549·9	743·5
36	124·63	536·4	778·9	136·28	528·1	762·2	131·63	548·6	761·9	127·05	547·5	750·1
42	124·72	537·0	781·8	136·88	529·3	763·4	131·55	549·7	760·2	127·55	543·2	753·8
48	125·08	536·5	782·4	137·03	528·8	763·0	131·49	550·0	761·9	127·01	540·6	757·5
54	124·72	537·7	781·8	136·43	530·1	759·7	131·47	550·8	763·1	126·97	539·9	756·9
		21^{h}.			1^{h}.			5^{h}.			9^{h}.	
0	124·73	537·5	780·3	135·10	533·9	757·4	130·98	550·7	763·3	125·75	540·3	759·3
6	124·57	536·8	780·3	135·30	535·6	757·5	130·98	550·4	764·4	124·99	541·0	764·5
12	125·10	537·6	776·5	135·25	538·5	755·9	130·58	547·9	764·8	125·50	542·3	764·1
18	125·02	537·3	776·9	135·55	539·0	756·4	130·25	548·7	763·9	126·28	541·4	761·1
24	125·20	537·3	775·3	135·62	539·4	756·3	130·32	552·2	765·0	126·63	541·4	758·9
30	125·00	535·9	774·3	135·73	539·6	756·4	130·35	552·1	766·7	126·92	540·5	758·5
36	125·19	536·5	771·4	135·68	541·0	756·1	130·60	551·3	766·9	126·95	541·4	759·5
42	125·10	535·9	771·7	135·82	542·5	756·1	130·78	547·9	767·5	127·12	543·7	756·8
48	125·52	536·3	769·8	135·73	544·5	757·8	130·58	544·6	767·2	126·46	546·5	754·3
54	126·33	536·0	770·9	136·13	545·6	759·2	129·96	546·9	766·9	126·40	546·8	760·2

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	48·8	48·8	49·1	49·8	50·8	50·7	50·0	52·6	53·0	54·4	54·7	54·9	54·9	55·2	54·6	54·1	54·9
BALANCE THERMOMETER,	50·9	51·6	51·6	52·6	53·5	52·6	52·6	53·9	54·2	55·5	55·7	56·2	56·9	57·1	57·5	58·2	58·9

Göttingen Mean Time of Declination Observation.	NOVEMBER 25, 26.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		10h.			14h.			18h.			22h.	
0	126·22	549·9	737·1	127·50	547·4	710·1	126·62	546·3	708·9	128·83	542·7	721·9
6	126·50	550·7	733·8	127·50	547·2	709·9	127·05	545·4	709·2	128·68	542·6	724·0
12	127·00	550·7	729·4	127·54	546·2	710·2	127·14	545·5	708·9	129·01	537·0	724·0
18	127·48	548·8	726·9	127·50	546·2	709·2	127·27	545·8	710·8	129·08	542·1	724·1
24	127·28	547·5	724·7	127·48	546·0	708·6	127·23	546·1	711·6	129·07	541·9	723·6
30	127·25	547·8	722·2	127·38	545·5	708·8	127·34	546·4	710·8	129·23	542·4	723·9
36	127·63	548·6	721·4	127·43	545·8	708·7	127·52	547·0	710·3	129·65	543·3	722·1
42	127·72	549·0	720·1	127·50	546·2	709·2	127·50	546·5	710·2	129·73	543·5	722·4
48	127·57	548·3	718·5	127·45	546·2	710·1	127·32	546·9	711·4	129·75	544·1	721·2
54	127·43	548·4	717·2	127·61	546·2	711·7	127·32	546·0	712·8	130·00	545·0	722·0
		11h.			15h.			19h.			23h.	
0	127·50	548·9	716·2	128·00	546·3	716·3	127·28	546·0	705·1	129·90	543·6	722·2
6	127·50	549·0	714·0	129·43	546·3	718·9	127·21	546·8	705·7	129·69	544·2	721·4
12	127·38	548·8	714·0	129·53	546·7	719·7	127·08	547·7	705·8	129·34	544·0	720·6
18	127·23	548·8	713·0	129·47	547·3	718·8	127·47	547·2	705·0	129·32	544·0	720·4
24	127·07	549·0	712·9	129·12	548·6	716·6	127·08	548·6	712·7	129·15	544·1	720·6
30	127·23	548·4	713·4	128·85	550·4	715·1	127·50	548·1	712·4	129·14	544·5	721·1
36	127·50	548·3	712·7	128·41	551·7	712·0	127·18	548·9	712·0	129·32	544·6	720·8
42	127·50	547·8	712·4	127·81	552·2	710·0	127·27	548·3	712·4	129·58	545·1	721·0
48	127·37	547·8	712·6	127·48	551·2	708·2	127·54	546·4	713·2	129·83	545·1	720·9
54	127·50	547·8	711·9	127·32	550·5	708·6	127·74	547·9	712·4	130·13	545·1	721·5
		12h.			16h.			20h.			0h.	
0	127·40	547·5	711·2	127·48	549·7	705·4	127·57	548·4	713·3	130·25	545·3	722·3
6	127·50	547·9	710·9	127·47	549·7	704·0	127·70	548·8	716·4	130·73	546·0	721·4
12	127·57	547·9	709·4	127·61	549·6	702·6	127·70	549·2	719·3	130·83	546·0·	718·7
18	127·50	547·9	709·3	127·74	549·0	700·6	127·70	548·6	718·9	131·18	545·9	719·5
24	127·60	547·6	710·6	128·14	549·0	699·5	127·77	550·4	717·8	130·95	544·8	720·3
30	127·50	547·6	711·1	128·28	549·3	697·9	127·74	550·5	716·0	130·87	544·9	719·9
36	127·50	547·6	710·9	127·67	549·3	696·4	127·98	550·0	713·0	130·70	545·2	720·3
42	127·40	547·3	711·5	127·05	550·0	694·5	127·97	549·0	711·4	130·98	545·7	719·5
48	127·50	547·8	711·2	126·45	549·7	694·3	128·23	549·6	710·7	131·10	544·7	721·8
54	127·21	547·9	712·1	126·25	549·4	694·9	128·12	550·5	711·8	131·00	545·0	722·3
		13h.			17h.			21h.			1h.	
0	127·50	547·7	713·1	126·23	549·1	695·3	128·17	549·8	711·2	131.05	544·5	720·9
6	127·50	547·0	712·1	126·32	548·5	696·2	128·23	549·1	711·0	130·98	545·8	722·9
12	127·50	546·9	711·7	126·32	547·7	697·1	128·28	548·3	711·5	131·60	548·3	724·5
18	127·50	547·1	711·8	126·65	547·5	697·8	128·52	548·0	715·3	130·95	546·7	723·5
24	127·50	546·6	711·7	126·79	547·2	698·8	128·45	546·3	716·3	131·69	546·4	727·3
30	127·50	546·6	712·0	126·92	547·0	700·7	128·41	545·7	717·1	131·25	545·4	727·1
36	127·50	546·5	712·0	127·00	546·7	703·0	128·38	545·1	719·3	131·62	546·5	729·0
42	127·58	547·2	710·9	127·08	546·2	705·5	128·57	543·3	719·4	131·70	546·6	727·5
48	127·52	546·8	711·1	127·08	546·0	707·0	128·68	542·3	720·7	131·65	545·5	727·5
54	127·50	547·2	710·0	126·97	546·1	707·2	128·45	543·0	722·4	131·09	544·6	728·1

HOUR, ...	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1
BIFILAR THERMOMETER, .	53·0	55·4	56·0	56·2	56·1	56·0	57·9	57·4	56·4	55·8	56·3	58·3	57·8	57·5	57·1	56·9
BALANCE THERMOMETER, .	53·0	55·3	55·8	56·2	56·4	56·6	59·0	58·4	57·3	57·1	57·9	60·0	59·7	59·2	59·0	59·1

Göttingen Mean Time of Declination Observation.	NOVEMBER 25, 26.						DECEMBER 20, 21.					
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		2^h.			6^h.			10^h.			14^h.	
0	131·23	546·5	730·0	128·28	552·4	716·6	122·40	548·5	705·3	125·42	548·1	680·2
6	131·12	546·2	731·0	128·25	552·5	715·8	123·13	548·4	703·9	125·28	547·7	680·1
12	131·07	547·0	732·1	128·35	551·7	717·6	123·47	549·3	701·3	125·02	547·1	678·5
18	131·32	547·9	731·6	128·45	551·1	717·6	124·05	548·0	700·4	125·40	546·8	680·1
24	131·18	547·0	731·5	128·28	551·5	716·8	124·13	548·0	697·7	125·63	547·2	678·6
30	130·98	547·7	729·4	128·34	551·2	716·1	124·53	548·4	696·5	126·15	546·8	680·5
36	130·98	547·9	729·4	128·27	551·1	716·2	124·40	547·4	693·7	126·77	546·9	680·1
42	130·98	549·4	728·9	128·05	550·9	716·2	124·08	548·2	693·0	127·54	546·0	680·5
48	131·16	550·1	728·4	127·90	550·4	716·4	124·39	548·0	690·5	127·63	546·5	679·4
54	131·12	549·7	727·8	127·58	551·4	716·1	124·07	549·1	688·6	126·98	547·1	677·7
		3^h.			7^h.			11^h.			15^h.	
0	131·00	549·9	727·0	127·78	550·7	715·5	123·97	549·7	687·5	126·28	548·0	678·2
6	130·98	549·7	727·3	128·27	550·6	715·8	123·91	549·2	685·7	126·05	548·0	678·4
12	130·98	550·2	727·4	128·12	549·3	715·2	123·84	550·0	685·5	125·95	547·0	680·0
18	130·98	550·4	727·7	128·17	549·2	714·2	124·53	548·9	683·6	125.68	546·2	679·2
24	130·98	550·5	727·5	128·18	549·1	713·9	124·39	548·4	682·4	125·50	546·0	679·4
30	130·82	549·3	727·0	127·95	549·3	714·9	124·73	549·4	681·9	125·02	545·6	678·9
36	130·85	550·2	725·9	128·01	549·0	715·2	125·19	549·1	680·8	124·79	546·2	679·3
42	130·83	550·4	724·7	128·27	548·5	714·9	125·70	548·7	681·1	124·52	546·4	680·6
48	130·35	550·7	724·0	127·98	548·3	713·9	125·93	549·5	681·8	124·73	545·9	681·0
54	130·35	548·3	723·8	127·65	548·3	713·7	125·72	548·3	680·8	124·45	547·0	681·3
		4^h.			8^h.			12^h.			16^h.	
0	130·49	549·8	721·1	127·54	548·4	712·9	125·45	548·9	681·0	124·68	547·4	681·1
6	130·49	550·3	720·4	127·10	548·4	712·2	125·26	549·3	679·9	125·02	548·3	682·1
12	130·36	550·1	720·3	127·07	548·3	712·8	125·50	550·6	679·7	125·02	546·8	681·6
18	129·92	550·1	721·9	127·50	547·4	712·0	126·37	552·4	677·9	124·83	546·7	682·7
24	129·49	550·8	721·8	127·28	547·7	712·3	126·19	552·5	676·3	125·20	547·0	683·9
30	129·58	550·7	721·7	127·17	546·5	711·6	125·70	550·2	675·9	125·82	547·3	686·4
36	129·28	550·6	721·8	126·40	546·6	711·5	125·45	549·3	676·0	126·22	549·3	685·4
42	129·17	551·2	719·2	126·39	548·2	711·1	125·48	548·7	677·6	126·57	547·5	684·7
48	129·14	551·3	721·0	126·90	547·1	712·6	125·62	548·5	677·6	127·03	547·3	684·1
54	129·35	551·5	719·3	127·41	546·1	712·9	125·85	548·5	677·6	127·00	547·6	682·8
		5^h.			9^h.			13^h.			17^h.	
0	128·90	549·5	719·7	127·23	545·9	713·7	126·08	548·4	677·6	126·90	547·9	679·8
6	129·17	548·0	719·2	127·12	547·0	716·3	126·32	548·4	677·7	126·59	547·6	678·6
12	128·58	546·1	720·8	126·90	546·3	716·8	126·28	548·3	679·5	126·15	547·3	676·0
18	127·68	546·4	720·3	126·82	546·1	718·0	125·65	549·0	679·0	126·48	546·8	675·3
24	126·98	547·3	722·6	126·82	546·7	718·8	126·19	549·6	676·1	126·62	547·0	674·4
30	126·68	548·7	722·0	126·82	546·8	720·2	126·28	550·1	677·6	126·28	547·1	675·1
36	126·80	550·4	719·7	126·79	546·7	719·2	125·82	548·7	678·8	126·08	547·4	675·6
42	127·43	550·2	719·0	126·90	546·5	719·8	125·72	549·1	678·0	126·32	547·0	673·4
48	127·45	552·5	718·1	127·03	546·0	720·1	125·70	548·4	678·3	126·66	546·9	676·9
54	127·88	552·8	716·4	127·27	545·8	719·7	125·43	546·9	679·5	126·42	547·1	677·3

HOUR, ...	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17
BIFILAR THERMOMETER,	56·9	57·9	59·0	59·6	59·8	59·8	59·5	58·6	58·4	60·6	61·8	62·7	62·7	62·6	62·2	61·4	60·7
BALANCE THERMOMETER,	58·9	60·2	61·2	61·3	61·7	61·5	61·2	60·6	59·7	62·2	63·5	64·2	64·2	64·0	63·6	62·9	62·2

Göttingen Mean Time of Declination Observation.	December 20, 21.											
	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.	DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
Min.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.	′	Sc. Div.	Mic. Div.
		18^h.			22^h.			2^h.			6^h.	
0	126·19	547·8	675·5	129·98	551·5	672·4	129·03	548·3	704·9	127·65	550·3	697·2
6	125·93	548·3	675·6	129·63	550·1	670·7	128·97	548·9	705·4	127·74	550·1	697·8
12	125·80	548·4	675·9	129·34	549·7	663·9	128·74	548·5	705·4	127·63	551·4	694·5
18	125·70	549·3	676·4	129·52	548·9	664·2	128·37	548·3	705·3	127·60	550·8	695·2
24	125·50	548·8	678·5	129·41	548·6	662·6	128·18	548·4	705·8	127·55	550·5	695·7
30	125·57	549·4	684·7	129·63	547·6	671·6	128.10	548·3	706·3	127·43	549·8	695·7
36	126·10	549·4	689·1	129·53	548·0	672·4	127·78	548·7	706·5	127·47	548·9	695·9
42	126·13	549·2	691·9	129·27	546·7	673·0	127·77	548·3	706·6	127·08	550·1	695·4
48	126·05	550·3	692·3	129·37	547·2	673·3	127·63	548·3	707·6	127·00	550·3	697·0
54	125·86	551·4	690·7	129·34	547·7	673·4	127·52	548·8	707·6	127·00	550·2	695·8
		19^h.			23^h.			3^h.			7^h.	
0	126·35	551·0	691·1	129·52	547·5	674·7	127·50	547·9	708·0	126·94	551·6	694·4
6	126·06	551·9	690·5	129·55	547·4	677·6	127·17	547·9	707·6	127·05	552·2	692·8
12	126·45	551·7	690·7	129·69	546·8	684·3	127·10	548·4	708·0	126·88	550·2	694·9
18	126·33	551·3	691·0	129·83	546·5	687·0	127·30	548·4	707·9	126·68	549·7	695·3
24	126·70	551·2	691·1	129·83	546·6	687·9	127·30	548·0	708·4	126·55	549·6	692·8
30	126·79	550·5	690·8	129·69	547·8	687·9	127·10	547·9	708·3	126·79	549·7	697·9
36	126·90	550·0	690·0	129·70	547·0	688·1	127·27	548·5	708·3	126·75	549·4	697·8
42	126·82	550·2	691·2	129·62	546·0	688·6	127·50	548·0	709·8	126·79	549·7	697·7
48	126·92	549·9	691·4	129·72	546·6	687·5	127·55	548·1	711·2	126·97	549·8	698·7
54	126·90	549·2	692·5	129·49	546·3	686·4	127·63	547·0	710·6	126·90	550·6	696·0
		20^h.			0^h.			4^h.			8^h.	
0	126·90	548·8	693·3	129·52	546·1	685·7	127·74	547·0	709·3	126·95	551·8	696·8
6	126·98	548·0	693·5	129·78	547·0	685·8	127·83	546·8	708·1	126·87	551·5	696·4
12	127·30	547·0	693·5	129·75	546·9	685·9	127·63	547·5	708·1	126·53	551·8	697·6
18	127·63	546·7	693·0	129·93	547·1	686·6	127·57	547·9	707·3	125·79	549·9	697·5
24	127·90	546·2	692·7	130·32	547·7	686·9	127·50	548·5	707·5	125·48	549·9	698·0
30	128·70	544·8	692·6	130·60	548·4	687·7	127·60	548·9	706·9	127·77	549·6	697·7
36	129·01	544·9	690·5	130·93	548·8	688·0	127·50	549·6	707·3	125·97	548·5	697·9
42	129·32	545·0	688·6	130·65	547·9	688·1	127·67	548·6	708·0	125·22	548·2	696·5
48	129·63	544·8	687·5	130·36	547·6	687·5	127·61	548·8	708·5	124·30	548·4	696·1
54	129·80	544·6	685·4	130·15	547·6	686·3	127·63	547·8	709·0	124·27	549·3	695·9
		21^h.			1^h.			5^h.			9^h.	
0	130·05	544·9	684·8	129·72	547·4	687·5	128·28	548·3	707·4	124·57	549·8	696·7
6	130·25	544·7	882·4	129·76	548·0	688·6	127·87	549·0	706·3	125·42	550·7	697·1
12	130·05	545·6	680·5	129·53	548·3	688·6	127·98	549·7	704·5	125·72	551·5	698·8
18	129·67	546·1	679·5	129·47	548·0	691·6	127·63	549·1	702·8	125·93	548·9	700·0
24	129·62	547·9	678·0	129·30	548·3	693·6	127·63	549·9	703·0	125·66	548·9	698·8
30	129·43	549·6	676·8	129·25	548·2	697·2	127·50	551·8	700·9	125·68	549·5	698·3
36	129·53	550·3	676·4	129·34	548·4	699·4	127·17	551·6	701·1	126·03	549·7	698·3
42	129·62	550·5	676·3	129·47	548·4	701·1	127·23	552·6	700·3	126·19	549·5	698·2
48	129·63	551·2	675·4	129·10	547·8	702·5	127·03	552·2	700·4	125·93	549·4	696·7
54	130·22	551·1	674·8	129·10	547·9	703·9	127·63	550·7	701·3	125·79	549·6	696·7

HOUR, ...	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10
BIFILAR THERMOMETER,	59·8	59·8	59·9	59·9	59·8	58·7	58·7	58·6	58·4	58·4	58·6	58·8	59·4	59·8	59·8	59·2	58·8
BALANCE THERMOMETER,	61·3	61·5	62·2	62·2	61·7	60·3	60·7	60·3	60·3	60·2	60·3	60·7	61·2	61·3	61·7	60·9	60·6

EXTRA OBSERVATIONS

OF

MAGNETOMETERS.

1841 AND 1842.

AUGUST 20.

Göttingen Mean Time of Observation.				DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
d.	h.	m.	s.	′	Sc. Div.	Mic. Div.
20	22	40	0	135·28	531·0	
		45	0	135·82		695
		50	0	136·02	531·5	
		55	0	136·30		691
	23	0	0	136·97	533·8	
		5	0	137·17		691
		10	0	137·83	532·5	
		15	0	138·10		693
		20	0	138·30		

SEPTEMBER 25.

Göttingen Mean Time of Observation.				DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
25	1	57	30			916
	2	0	0	153·14		
		2	30		664·3	
	4	4	42	155·82		
		5	0	161·38		
		5	18	165·54		
		6	30			1070
		10	0	129·78		
		11	30			975
		13	30		804·8	
		15	0	124·62		
		16	30			686
		18	5		784·6	
			30		799·5	
			55		802·7	
		20	0	161·94		
		21	30			882
		23	5		863·0	
			30		864·3	
			55		889·0	
		24	42	192·05		
		25	0	183·33		
		25	18	179·95		
		26	30			1045
		28	5		863·2	
			30		841·9	
			55		827·9	
		30	0	128·98		
		31	30			965
		33	5		752·8	
			30		757·7	
			55		767·4	
		35	0	161·58		
		36	30			927
		38	30		776·6	
		40	0	131·47		
		41	30			940
		43	30		731·3	
		45	0	136·37		

SEPTEMBER 25.

Göttingen Mean Time of Observation.				DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
d.	h.	m.	s.	′	Sc. Div.	Mic. Div.
25	4	46	30			909
		48	30		764·7	
		50	0	141·87		
		51	30			1032
		53	5		812·0	
			30		822·6	
			55		829·0	
		55	0	121·40		
		56	30			910
		58	5		849·7	
			30		854·6	
			55		861·0	
	5	0	0	130·45		
		1	30			802
		3	5		875·1	
			30		861·1	
			55		843·6	
		5	0	135·42		
		6	30			823
		8	30		779·7	
		9	42	142·20		
		10	0	152·54		
		10	18	154·80		
		11	30			898
		13	30		757·0	
		15	0	142·73		
		16	30			1005
		18	30		690·5	
		20	0	138·30		
		21	30			907
		23	30		705·7	
		25	0	149·36		
		26	30			907
		28	30		676·9	
		30	0	139·52		
		31	30			894
		33	30		690·2	
		34	42	139·05		
		35	0	130·32		
		35	18	121·07		
		36	30			847
		38	30		793·2	
		39	42	180·65		
		40	0	184·00		
		40	18	158·90		
		41	30			827
		43	30		795·0	
		45	0	171·42		
		46	30			695
		48	30		620·0?	
		50	0	131·60		
		51	30			838

SEPTEMBER 25.

Göttingen Mean Time of Observation.				DECLINATION.	BIFILAR Corrected.	BALANCE Corrected.
d.	h.	m.	s.	′	Sc. Div.	Mic. Div.
25	5	53	30		655·2	
		55	0	147·23		
		56	30			666
		58	30		702·9	
	6	0	0	164·14		
		1	30			619
		3	30		783·5	
		5	0	188·98		
		6	30			823
		8	30		794·9	
		10	0	190·50		
		11	30			1007
		13	30		760·3	
		15	0	141·12		
		16	30			689
		18	5		834·2	
			30		824·8	
			55		809·8	
		19	42	194·20		
		20	0	213·43		
		20	18	221·56		
		21	30			781
		23	30		592·6	
		25	0	205·27		
		26	30			1000
		28	30		620·3	
		30	0	182·91		
		31	30			655
		33	30		660·7	
		35	0	199·70		
		36	30			682
		38	30		637·0	
		40	0	204·40		
		41	30			841
		43	5		693·0	
			30		680·7	
			55		667·4	
		45	0	189·03		
		46	30			943
		48	5		604·1	
			30		615·5	
			55		620·2	
		50	0	182·25		
		51	30			878
		53	5		643·3	
			30		649·4	
			55		659·6	
		55	0	178·90		
		56	30			763
		58	5		622·8	
			30		617·8	
			55		606·0	

Aug. 20^d 22^h 1841. Observations made during a thunder-storm. 22^h 50^m. Very heavy rain. 23^h 15^m. Clearing off. 23^h. Thermometers, Bifilar, 60°·4; Balance, 61°·0. The times of the Bifilar and Balance observations are 2^m 30^s after those in the first column.

From the above it would not appear that the mean directions of the magnets were affected by the thunder-storm; the vibrations of the Declination magnet were occasionally very considerable, and this appeared particularly the case when the fall of rain was unusually heavy;—thus, at 22^h 50^m, when the rain was exceedingly violent, the arc of vibration amounted to about 17′, while at 22^h 45^m, when the fall was comparatively slight, the arc of vibration did not exceed 3′. E. R.

Sept. 25^d 4^h 1841. When the scale of the Bifilar Magnetometer went or was going out of the field of the reading telescope, Mr Russell turned the torsion circle so as to bring the scale into the field again; the following were the readings of the torsion circle at the times annexed:—2^h 2^m 30^s, 114°, usual position; 4^h 0^m, 108°; 5^h 20^m, 110°; 5^h 25^m, 111°; 5^h 40^m, 109°; 5^h 50^m, 111°; 6^h 25^m, 112°. The reading of the Bifilar scale was estimated at the following times, the scale being in sight, but beyond the vertical wire of the reading telescope; 2^h 2^m 30^s, 5^h 18^m 30^s, 6^h 23^m 30^s. At 5^h 48^m 30^s the scale was out of sight, so that the reading must have been *less* than is here noted.

The observations of the Bifilar Magnetometer are reduced to the torsion circle reading 114°. See *Introduction.*

Sept. 25^d 1841. Bifilar Thermometer, 2^h, 62°·0; 4^h, 65°·1; 5^h, 65°·0; 6^h, 64°·9; 7^h, 64°·2.
Balance Thermometer, 2^h, 60°·2; 4^h, 63°·2; 5^h, 63°·2; 6^h, 63°·2; 7^h, 63°·2.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
May 16 4					58	998
May 16 5	0	149·71	2	574·3		
	13	144·42	15	554.3	14	1055
	16	141·93	18	549·1	17	1069
	19	139·72	21	546·7	20	1072
	22	139·38	24	544·9	23	1077
	25	137·37	27	549·4	26	1074
	28	134·53	30	551·5	29	1056
	31	134·60	33	552·3	32	1042
	34	134·82	36	554·9	35	1031
	37	134·88	39	553·3	38	1022
	40	135·22	42	552·9	41	1015
	43	135·55	45	555·4	44	1008
	46	135·55	48	556·6	47	1003
	49	135·82	51	553·6	50	999
	52	135·15	54	555·1	53	995
	55	134·33	57	555·4	56	989
	58	134·33	60	554·8	59	984
May 16 6	1	134·20	3	556·0	2	980
	4	134·13	6	558·3	5	975
	7	135·08	9	558·9	8	970
	10	135·62	12	559·8	11	967
	13	136·68	15	560·3	14	964
	16	136·88	18	558·3	17	962
	19	137·37	21	557·3	20	960
	22	137·30	26	555·4	24	958
	28	137·57	31	550·7	29	957
	33	137·15	39	548·0	36	951
	42	136·02	48	548·5	45	941
	51	136·02	57	556·1	54	932
May 16 7	0	136·35	6	555·5	3	928
	9	136·35	15	556·9	12	922
	18	137·50			28	920
			40	549·0		
May 24 7	30	130·65	32	549·6	34	839
May 24 8	0	130·45	2	550·1	4	839
May 25 2	54	135·28	55	546·0	56	823
	57	135·62	58	545·9	59	821
May 25 3	0	135·02	1	547·3	2	819
	3	135·02	4	549·0	5	819
	6	134·82	7	547·9		
			11	549·9		
			13	546·9		
			16	544·7		
			20	549·3		
	26	134·33	24	548·8	25	816
May 25 5	27	132·13	26	557·3		
			29	554·8		
			30	556·6		
			34	553·6		
July 1 19					58	618
July 1 20	0	126·42	2	479·8		
	6	118·63	7	495·2	9	634
	10	122·33	11	513·5	12	634
	13	125·22	14	517·3	15	635
	16	125·48	17	507·2		
	18	123·40	19	488·2	20	655
	21	122·73	22	472·4	23	666
	24	121·52	25	456·1	26	678
	27	120·12	28	462·6	29	670
				(464·3)		
	30	119·85	31	473·1	32	661
				(474·8)		
	33	119·18	34	491·5	35	655
	36	117·37	37	499·6	38	654
				(503·3)		
	39	113·93	40	509·1	41	651
				(506·4)		
	42	106·55	43	489·1	44	672
				(487·5)		
	45	120·45	46	485·1	47	698
				(484·5)		
	48	128·03	49	467·8	50	701
	51	119·45			52	703
	54	126·15	55	464·8	56	716
	57	133·67	58	459·0	59	721
July 1 21	0	130·78	1	443·6	2	720
				(445·1)		
	3	124·07	4	435·7	5	714
				(430·2)		
	6	111·53	7	432·1	8	708
				(433·6)		
	9	110·12	10	455·6	11	707
				(456·6)		
	12	116·83	13	461·3	14	710
	15	114·42	16	439·5	17	718
				(436·3)		
	18	115·35	19	460·5	20	733
				(462·7)		
	21	131·25	22	478·3	23	726
		(127·17)				
	24	127·97	25	481·0	26	720
				(483·2)		

Bifilar Thermometer. May 16^d 5^h 1842, 67°·0 ; 6^h, 67°·7 ; 7^h, 67°·9. May 24^d 7^h 30^m, 58°·0. May 25^d 3^h, 59°·5 ; 5^h, 61°·1. July 1^d 20^h, 58°·4 ; 21^h, 58°·0.

Balance Thermometer. May 16^d 5^h, 64°·7 ; 6^h, 65°·3 ; 7^h, 65°·7. May 24^d 7^h 30^m, 56°·7. May 25^d 3^h, 58°·1. July 1^d 20^h, 58°·7 ; 21^h, 58°·4.

Arcs of Vibration. Declination Magnet. July 1^d 20^h 0^m, 11′ ; 20^h 6^m, 7′ ; 20^h 13^m, 8′ ; 20^h 16^m, 15′ ; 20^h 18^m, 17′ ; 20^h 21^m, 11′ 20^h 24^m, 10′ ; 20^h 27^m, 7′. Bifilar Magnet. July 1^d 20^h 2^m, (22^{div} up) ; 21^h 4^m, 14^{div} ; 21^h 7^m, 13^{div}.

The arcs of vibration given above are taken from the *readings* as registered, and are therefore generally less than the truth ; in a few cases the arc was *noted* at the time of observation. The arc has not been given excepting when the difference of two consecutive readings exceeds 6′ for the Declination and 10^d for the Bifilar. When the readings of the Bifilar do not shew a vibration but a progressive motion, the quantity moved in 50^s is given in brackets with up or down attached as the reading was increasing or diminishing.

July 1^d—4^d. When an observation of the Bifilar is given in brackets ( ), it is the mean position 25^s after the previous observation ; an extra reading having been made at 50^s, it is the mean of the readings at 0^s, 25^s, and 50^s. The observations of Declination in brackets are the mean positions 18^s before the succeeding observation, obtained by making a reading 36^s before the minute. 25^s and 18^s being the times of vibration of the Bifilar and Declination magnets respectively.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
July 1 21	27	124·88	28	489·1	29	712
	30	120·05	31	464·6	32	717
				(461·8)		
	33	117·97	34	471·9	35	719
	36	122·00	37	465·4	38	730
	39	125·35	40	472·4	41	732
		(128·70)				
	42	129·72	43	463·9	44	735
				(462·6)		
	45	126·55	46	464·0	47	738
				(467·0)		
	48	133·13	49	484·2	50	733
				(485·8)		
	51	140·05	52	495·5	53	727
	54	143·95	55	503·8	56	721
				(501·8)		
	57	145·50	58	498·2	59	726
				(495·5)		
July 1 22	0	145·30	1	489·0	2	718
	3	137·37	4	491·8	5	712
				(494·0)		
	6	135·35	7	497·1	8	715
				(500·6)		
	9	138·23	10	513·2	11	718
		(140·12)				
	12	139·25	13	514·9	14	711
				(513·8)		
	15	128·70	16	502·6	17	714
				(504·8)		
	18	126·42	19	494·3	20	724
	21	129·17	22	485·3	23	731
				(483·9)		
	24	129·85	25	489·3	26	726
				(490·6)		
	27	125·75	28	489·4	29	724
				(495·9)		
	30	130·38	31	501·4	32	722
				(499·1)		
	33	130·18	34	507·6	35	716
		(131·23)		(511·7)		
	36	132·05	37	516·9	38	714
				(519·1)		
	39	134·00	40	520·7	41	710
	42	131·52	43	511·8	44	713
				(510·6)		
	45	127·23	46	501·8	47	719
	48	129·98	49	503·2	50	727
				(501·7)		
	51	132·73	52	497·4	53	728
				(498·9)		
	54	131·98	55	509·2	56	729
	57	133·67	58	505·1	58	732
					59	730
July 1 23	0	130·67	1	502·1	2	729
	3	130·52	4	496·4	5	736
				(493·2)		
	6	130·18	7	485·5	8	740
				(483·1)		
July 1 23	9	129·23	10	487·9	11	746
				(486·8)		
	12	134·27	13	493·8	14	748
	15	134·95	16	492·9	17	750
	18	135·42	19	501·6	20	752
	21	137·77	22	510·9	23	746
				(512·4)		
	24	137·97	25	511·8	26	744
				(514·2)		
	27	137·30	28	523·5	29	733
				(526·6)		
	30	137·57	31	536·3	32	721
				(540·0)		
	33	136·08	34	537·4	35	723
	36	136·82	37	533·5	38	728
				(530·4)		
			39	527·0		
	42	131·45	43	524·9	44	721
				(527·8)		
	45	130·65	46	523·6	47	728
	48	131·52	49	515·8	50	732
	51	128·10	52	521·8	53	732
	54	128·43	55	524·0	56	737
				(522·6)		
	57	128·70	58	516·8	59	744
July 2 0	0	124.75	1	509·0	2	756
				(510·0)		
	3	123·00	4	522·2	5	755
				(523·6)		
	6	123·07	7	530·3	8	761
				(535·7)		
	9	120·45	10	535·5	11	771
	12	116·35	13	537·3	14	779
				(535·6)		
	15	113·93	16	540·0	17	793
		(115·55)				
	18	114·20	19	547·3	20	804
				(544·6)		
	21	113·20	22	541·0	23	820
	24	119·52	25	544·6	26	835
				(547·4)		
	27	130·38	28	571·6	29	842
				(575·3)		
	30	136·62	31	584·5	32	857
	33	134·47	34	576·5	35	907
	36	148·44	37	559·1	38	977
				(552·1)		
	39	141·13	40	544·4	41	1024
	42	135·88	43	547·0	44	1044
	45	133·33	46	554·3	47	1068
				(557·0)		
	48	128·63	49	563·7	50	1109
				(566·9)		
	51	130·58	52	557·3	53	1124
				(553·3)		
	54	131·65	55	542·5	56	1118
	57	128·17	58	543·8	59	1096
July 2 1	0	126·28	1	546·9	2	1079

Bifilar Thermometer. July $1^{d}\ 22^{h}$, 58°·0 ; 23^{h}, 58°·4 ; $2^{d}\ 0^{h}$, 58°·9 ; 1^{h}, 59°·7.
Balance Thermometer. July $1^{d}\ 22^{h}$, 58°·4 ; 23^{h}, 58°·5 ; $2^{d}\ 0^{h}$, 59°·0 ; 1^{h}, 59°·7.
Arcs of Vibration. Declination Magnet. July $1^{d}\ 21^{h}\ 45^{m}$, 6′ ; $21^{h}\ 51^{m}$, 6′ ; $2^{d}\ 0^{h}\ 33^{m}$, 15′. Bifilar Magnet, July $1^{d}\ 22^{h}\ 7^{m}$, 12^{div} ; $22^{h}\ 16^{m}$, 11^{div} ; $2^{d}\ 0^{h}\ 7^{m}$ (17^{div} up).
See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
July 2 1	3	124·42	4	546·5	5	1060
				(548·9)		
	6	123·67	7	557·1	8	1040
				(558·1)		
	9	123·93	10	560·2	11	1020
				(562·3)		
	12	126·08	13	570·1	14	995
				(571·7)		
	15	128·37	16	571·6	17	978
	18	129·03	19	573·5	20	956
				(576·5)		
	21	129·37	22	569·6	23	950
				(562·6)		
	24	131·18	25	582·4	26	925
				(585·5)		
	27	130·05	28	552·8	29	921
	30	129·52	31	567·5	32	906
				(565·8)		
	33	131·32	34	575·7	35	895
				(567·9)		
	36	131·72	37	573·3	38	871
				(574·5)		
	39	132.67	40	572·3	41	856
				(574·1)		
	42	133·27	43	568·1	44	847
	45	133·67	46	570·3	47	832
				(572·4)		
	48	136·55	49	574·1	50	813
				(571·5)		
	51	136·68	52	564·6	53	810
				(561·3)		
	54	137·37	55	556·5	56	806
				(554·5)		
	57	136·68	58	542·9	58	810
					59	811
July 2 2	0	138·03	1	542·4	2	814
				(533·8)		
	3	138·37	4	538·8	5	798
				(542·2)		
	6	142·28	7	529·7	8	809
				(522·1)		
	9	135·88	10	502·4	11	815
				(508·3)		
			12	516·4		
			13	510·1	14	813
	15	140·18	16	516·8	17	806
	18	140·72	19	525·0	20	794
				(526·6)		
			21	529·0		
			22	528·2	23	797
	24	141·05	25	540·5	26	797
				(538·0)		
	27	138·72	28	531·7	29	794
				(532·8)		
			30	538·6		
			31	532·7	32	790
	33	139·05	34	536·2	35	795
July 2 2	57	137·50	58	523·4	59	802
July 2 3	0		0	524·0		
			1	529·5	2	798
	3	138 92	4	536·2	5	796
				(537·4)		
			6	535·0		
			7	539·7		
			8	540·2		
			28	559·8	29	776
				(561·3)		
	30	138·85	31	557·4	32	784
				(554·7)		
			33	550·3		
	35	137·77				
			50	495·2	52	825
	54	135·15	56	517·1	58	822
July 2 4	0	135·82	2	527·2	4	819
	6	132·27	8	536·3	10	808
	12	132·87	14	538·4	16	809
			20	537·8	22	806
	24	133·07	26	541·1	28	806
	30	133·80	32	563·5	34	796
	36	133·73	38	546·7	40	800
	42	134·95	44	552·1	46	795
	48	133·53	50	535·8	52	804
	54	134·13	56	557·5	58	799
July 2 5	0	137·43	2	559·2	4	811
	6	137·57	8	586·4	10	801
	12	137·23	14	589·8	16	825
	18	127·15	19	606·6		
			20	609·9		
			21	615·8		
			22	622·0	22	842
			23	624·9		
	24	136·22	24	625·2		
			25	626·0		
			26	620·6	28	875
	29	133·27	30	622·4	31	889
	32	131·58	33	621·1	34	904
	35	130·85	36	623·0	37	914
	38	132·05	39	626·4	40	922
	41	132·93	42	625·7	43	927
				(623·5)		
	44	132·47	45	615·0	46	933
	47	131·38	48	609·4	49	943
				(607·5)		
			50	606·0		
			51	606·1	52	947
	53	131·12	54	605·8	55	950
			56	605·8		
			57	603·7	58	955
	59	133·53		(602·7)		
July 2 6	0		0	589·4	1	961
				(588·3)		
	2	132·47	3	590·2	4	965
				(588·7)		
			5	579·1		

Bifilar Thermometer. July 2ᵈ 2ʰ, 60°·0 ; 3ʰ, 60°·5 ; 5ʰ, 61°·6 ; 6ʰ, 61°·8.
Balance Thermometer. July 2ᵈ 2ʰ, 59°·9 ; 3ʰ, 60°·2 ; 5ʰ, 61°·2 ; 6ʰ, 61°·4.
Arcs of Vibration. Bifilar Magnet. July 2ᵈ 2ʰ 7ᵐ, 28ᵈⁱᵛ.
See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div,	m.	Mic. Div.
July 2 6	6	132·13	7	576·8	8	983
	9	133·53	10	588·0	11	993
				(591·0)		
			12	596·3	13	1000
	14	134·00	15	586·6		
			16	588·0	17	1011
				(589·5)		
	18	130·32	19	588·0	20	1012
			21	588·2		
			22	587·1	23	1006
	24	129·17	25	582·6	26	996
			27	570·2		
			28	568·5	29	1002
				(572·4)		
	30	130·72	31	604·7	32	1047
			33	602·0		
			34	597·3	35	1044
	36	128·30	37	594·4	38	1031
			39	594·3		
			40	592·0	41	1020
	42	127·97	43	584·2	44	1002
			45	586·6		
			46	585·3	47	987
				(587·6)		
	48	123·20	49	593·6	50	983
	51	117·10	52	602·3	53	959
	54	118·43	55	576·9	56	945
				(572·9)		
	57	115·48	58	571·6	59	945
July 2 7	0	108·05	1	592·4	2	925
				(595·8)		
	3	110·38	4	601·7	5	916
	6	114·35	7	602·7	8	922
				(603·7)		
	9	115·55	10	597·4	11	927
				(596·0)		
	12	113·80	13	588·6	14	932
	15	112·00	16	586·5	17	930
	18	109·12	19	604·2	20	923
				(607·0)		
	21	111·05	22	613·7	23	912
	24	115·62	25	604·4	26	906
				(602·4)		
	27	119·18	28	592·8	29	908
	30	120·72	31	594·8	32	908
				(593·8)		
	33	122·27	34	585·1	35	904
	36	121·18	37	584·1	38	901
	39	122·93	40	579·5	41	896
				(577·2)		
	42	122·20	43	569·2	44	890
				(568·1)		
	45	123·07	46	567·0	47	885
	48	125·55	49	561·3	50	889

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m	′	m.	Sc. Div.	m.	Mic. Div.
July 2 7	51	122·47	52	572·4	53	883
				(574·1)		
	54	122·73	55	575·7	56	865
	57	125·55	58	573·5	59	863
July 2 8	0	126·42	1	572·6	2	862
	6	130·12	8	560·7	10	874
	12	128·43	14	547·9	16	869
	18	129·30	20	545·6	22	866
	24	129·37	26	541·9	28	858
	30	129·85	32	538·4	34	863
	36	127·70	38	537·4	40	860
	42	124·82	44	534·2	46	844
	48	125·22	50	526·7	52	815
	54	128·90	56	504·9	58	751
July 2 9	0	125·82	1	480·2	2	704
	3	125·08	4	473·0	5	689
	6	122·93	7	473·0	8	684
	9	120·58	10	482·6	11	684
	12	116·77	13	468·9	14	663
	15	116·83	16	483·4	17	653
				(486·0)		
	18	117·70	19	492·2	20	665
	21	116·70	22	501·1	23	671
	24	116·35	25	489·1	26	668
				(484·1)		
	27	114·22	28	476·0	29	637
	30	112·87	31	474·8	32	605
				(473·2)		
	33	114·35	34	466·3	35	581
	36	113·73	37	476·0	38	569
	39	113·20	40	466·0	41	558
	42	109·98	43	461·9	44	538
				(460·4)		
	45	108·16	46	447·1	47	510
	48	109·18	49	434·5	50	479
	51		52	419·4	53	458
	54	110·65	55	406·3	56	431
	57		58	398·8	59	406
July 2 10	0		1	387·4	2	367
	4	104·90	4	392·9	5	345
	6	106·70	7	386·5		
	8	108·43			8	332
	10	110·92	10	376·7	11	304
	12	117·03	12	Out of field.		
	14	126·42			14	236
	32	130·32				
	34	137·37				
	36	139·38				
	38	141·05			39	214
	40	138·72				
	42	134·95				
	44	130·18	44	323·3	45	299
	46	126·48	47	358·4		

Bifilar Thermometer. July 2^{d} 7^{h}, 61°·6 ; 9^{h}, 60°·6.

Balance Thermometer. July 2^{d} 7^{h}, 61°·2 ; 9^{h}, 60°·7.

Arcs of Vibration. Declination Magnet. July 2^{d} 10^{h} 32^{m}, 15′ ; 10^{h} 34^{m}, 7′ ; 10^{h} 36^{m}, 19′ ; 10^{h} 38^{m}, 17′ ; 10^{h} 40^{m}, 10′ ; 10^{h} 42^{m}, 26′.

July 2^{d} 10^{h} 10^{m}. Bifilar Scale going out of field, reading estimated.

July 2^{d} 10^{h} 16^{m}. Torsion circle of Bifilar turned from 109° 10′ to 111° 35′. Various attempts were made to bring the scale into the field of the reading telescope, while the mirror for illuminating the collimator had been thrown out of position ; this was not discovered till about 38^{m}. The Balance crosses had also gone out of sight till the wooden front of the box was removed. In the adjustment of these two instruments the Declination readings were lost for some time. After 13^{h} the torsion circle was turned to its original position 109° 10′.

The observations of the Bifilar Magnetometer from 10^{h} 38^{m} till 13^{h} are reduced to the torsion circle reading 109° 10′. See *Introduction*.

See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
July 2 10	48	123·27			48	346
	50	122·33	50	374·4	51	354
	52	118·97	53	424·5		
	54	116·77			54	327
	56	115·88	56	419·4	57	310
	58	116·70	59	423·9		
July 2 11	0	116·77			0	287
	2	119·12	2	423·4	3	267
	4	123·33	5	422·6		
	6	128·17			6	244
	8	130·05	8	413·5	9	265
	10	129·85	11	417·2		
	12	128·23			12	274
	14	128·77	14	432·4	15	294
	16	127·57	17	458·8		
	18	127·50			18	307
	20	129·23	20	463·6	21	313
	22	129·23	23	458·2		
	24	130·72			24	321
	26	132·53	26	405·8	27	303
	28	128·70	29	390·7		
	30	126·22			30	292
	32	121·58	32	390·9	33	315
	34	118·70	35	406·8		
	36	122·60			36	301
	38	131·32	38	410·2	39	220
	40	138·43	41	392·1		
	42	139·58			42	156
	44	142·92	44	355·2	45	109
	46	147·83	47	288·7		
	48	150·28			48	74
	50	139·98	50	293·3	51	177
	52	113·33	53	396·5		
	54	108·23			54	119
	56	118·43	56	442·2	57	128
	58	116·77	59	486·3		
July 2 12	0	115·82			0	165
	2	126·82	2	513·6	3	194
	4	134·75	5	502·5		
	6	140·12			6	264
	8	133·13	8	481·0	9	369
	10	124·48	11	486·2		
	12	118·83			12	386
	14	120·52	14	482·2	15	392
	16	116·77	17	515·7		
	18	113·80			18	426
	20	108·78	20	530·3	21	472
	22	106·63	23	553·9		
	24	110·52			21	463
	26	115·62	26	537·9	27	488
	28	112·53	29	527·1		
July 2 12	30	110·85			30	498
	32	113·60	32	517·2	33	479
	34	117·57	35	506·5		
	36	120·32			36	482
	38	119·38	38	494·2	39	509
	40	117·57	41	500·0		
	42	119·03			42	500
	44	121·12	44	500·9	45	489
	46	124·48	47	478·8		
	48	121·38			48	520
	50	114·55	50	487·1	51	529
	52	114·00	53	491·4		
	54	110·78			54	516
	56	109·65	56	495·8	57	497
	58	110·78	59	503·4		
July 2 13	0	109·85			0	488
	2	109·92				
July 3 19					58	523
July 3 20	1	132·20	2	443·6		
	6	136·82	7	443·4 (441·7)	8	551
	9	140·98	10	439·6	11	564
	12	133·27	13	435·9 (434·7)	14	560
	15	136·42	16	435·0 (434·0)	17	558
	18	136·15	19	430·3 (428·9)	20	560
	21	136·95	22	422·9	23	538
	24	139·58	25	422·9 (426·0)	26	533
	27	135·62	28	430·6 (432·8)	29	524
	30	137·15	31	417·8 (416·8)	32	521
	33	138·03	34	420·3	35	532
	36	141·60	37	430·8 (428·1)	38	548
	39	139·32	40	422·7 (420·4)	41	565
	42	136·48	43	414·3 (415·5)	44	561
	45	138·10	46	424·5 (425·5)	47	551
	48	136·75	49	424·1 (425·9)	50	538
	51	134·60	52	416·0 (413·5)	53	541
	54	136·48	55	417·2 (410·6)	56	552

Bifilar Thermometer. July 2^{d} 11^{h}, 60°·1 ; 12^{h}, 59°·7 ; 13^{h}, 59°·2 ; 3^{d} 20^{h}, 56°·4.

Balance Thermometer. July 2^{d} 11^{h}, 63°·3 ; 12^{h}, 62°·2 ; 13^{h}, 61°·1 ; 3^{d} 20^{h}, 56°·4.

Arcs of Vibration. Declination Magnet. July 2^{d} 10^{h} 48^{m}, 7′ ; 10^{h} 50^{m}, 8′; 11^{h} 50^{m}, 10′; 11^{h} 52^{m}, 8′; 3^{d} 20^{h} 12^{m}, 8′ ; 20^{h} 48^{m}, 9′; 20^{h} 54^{m}, 13′. Bifilar Magnet. July 2^{d} 11^{h} 23^{m}, 10^{div} ; 11^{h} 41^{m} (21^{div} down) ; 11^{h} 43^{m} (42^{div} up) ; 11^{h} 59^{m}, 10^{div} ; 12^{h} 11^{m}, 12^{div} ; 3^{d} 20^{h} 25^{m}, 17^{div} ; 20^{h} 28^{m}, 22^{div} ; 20^{h} 31^{m}, 10^{div} ; 20^{h} 34^{m}, 15^{div} ; 20^{h} 43^{m}, 24^{div} ; 20^{h} 52^{m}, 16^{div} ; 20^{h} 55^{m}, 35^{div} *(noted)*.

July 2^{d} 12^{h} 23^{m}. Reading of Bifilar estimated, Scale going out of field.

July 3^{d} 20^{h} 0^{m}. The following are the readings of the Declination 18^{s} before and 18^{s} after the minute, the reading at the minute having been lost, 19^{h} 59^{m} 42^{s}, 116′·8 ; 20^{h} 0^{m} 18^{s}, 127′·6.

See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m	′	m.	Sc. Div.	m.	Mic. Div.
July 3 20	57	133·67	58	442·5	59	538
				422·4		
July 3 21	0	134·20	1	397·4	2	532
				387·2		
				469·2		
	3	148·19	4	356·0	5	603
	6	144·09	7	397·6	8	582
				(401·8)		
	9	130·45	10	397·6	11	573
				(404·5)		
	12	136·55	13	389·9	14	611
				(383·9)		
	15	140·78	16	388·5	17	613
	18	149·71	19	402·7	20	604
				(404·5)		
	21	155·70	22	423·7	23	592
				(427·8)		
	24	146·84	25	446·8	26	590
	27	150·58	28	457·0	29	592
		(149·63)		(460·2)		
	30	150·58	31	452·6	32	617
	33	146·77	34	483·7	35	638
				(485·3)		
	36	142·47	37	494·4	38	644
				(481·6)		
	39	143·27	40	526·8	41	634
	42	139·32	43	505·0	44	642
				(503·8)		
	45	140·38	46	514·1	47	661
	48	140·52	49	521·4	50	669
	51	138·17	52	503·0	53	685
		(130·58)		(496·9)		
	54	129·58	55	492·0	56	679
	57	134·40	58	502·3	59	684
				(503·5)		
July 3 22	0	135·42	1	503·4	2	683
				(505·5)		
	3	136·42	4	506·8	5	684
				(510·2)		
	6	139·85	7	505·2	8	682
				(506·4)		
	9	140·78	10	511·9	11	689
				(510·4)		
	12	141·67	13	508·0	14	693
				(512·2)		
	15	142·00	16	498·5	17	692
				(497·0)		
	18	138·52	19	486·3	20	702
	21	140·65	22	502·5	23	710
	24	142·54	25	502.9	26	710
				(504·5)		
	27	142·87	28	501 6	29	716
				(497·9)		
	30	141·87	31	496·5	32	721
	33	142·47	34	489·2	35	716
				(488·2)		
July 3 22	36	140·38	37	496·5	38	720
	39	139·32	40	503·8	41	716
	42	138·30	43	511·7	44	716
	45	137·43	46	505·0	47	716
	48	136·02	49	497·8	50	724
		(136·35)		(501·9)		
	51	135·42	52	502·1	53	722
		(137·70)		(505·2)		
	54	135·28	55	502·8	56	730
				(499·4)		
	57	135·55	58	498·8	58	742
					59	757
July 3 23	0	133·27	1	494·2		
			2	501·6	2	757
	3	131·05	4	494·7	5	771
	6	130·85	7	490·3	8	767
				(489·2)		
	9	131·45	10	484·2	11	779
				(482·4)		
	12	133·87	13	477·7	14	785
	15	135·95	16	482·1	17	793
	18	136·62	19	503·5	20	777
	21	135·88	22	473·0	23	806
	24	137·97	25	460·2	26	806
				(468·2)		
	27	135·22	28	467·6	29	809
	30	137·83	31	480·6	32	799
	33	137·23	34	502·0	35	791
				(505·0)		
	36	136·02	37	508·0	38	789
	39	136·35	40	506·2	41	779
				(503·4)		
	42	137·97	43	501·8	44	767
	45	138·23	46	497·3	47	780
	48	136·62	49	487·3	50	789
	51	139·78	52	491·5	53	791
	54	138·58	55	497·0	56	803
	57	137·15	58	492·9	59	818
				(495·2)		
July 4 0	0	137·23	1	499·0	2	822
	3	135·28	4	499·5	5	822
				(501·5)		
	6	137·23	7	500·2	8	821
				(502·1)		
	9	136·42	10	504·7	11	817
	12	135·48	13	508·3	14	815
	15	136·42	16	508·9	17	822
	18	134·68	19	503·6	20	828
	21	135·48	22	502·4	23	834
	24	135·68	26	500·3	28	836
	30	135·68	32	501·3	34	829
	36	134·68	38	514·2	40	837
	42	132·93	43	520·1	44	847
	45	132·27	46	517·8	47	854
	48	132·67	49	516·1	50	858
	52	133·40	54	516·8	56	863

July 3^{d} 21^{h} 1^{m}. The four observations in brackets are the readings at 0^{m} 35^{s}, 1^{m} 0^{s}, 1^{m} 25^{s}, and 1^{m} 50^{s}. Between 1^{m} 25^{s} and 1^{m} 50^{s} the magnet went up 110^{div}. 21^{h} 4^{m}. Reading of Bifilar estimated, Scale going out of field.

Bifilar Thermometer. July 3^{d} 21^{h}, 56°·4 ; 22^{h}, 57°·0 ; 23^{h}, 58°·2 ; 4^{d} 0^{h}, 58°·8.

Balance Thermometer. July 3^{d} 21^{h}, 56°·5 ; 22^{h}, 57°·0 ; 23^{h}, 57°·9 ; 4^{d} 0^{h}, 58°·4.

Arcs of Vibration. Declination Magnet. July 3^{d} 20^{h} 57^{m}, 7′ ; 21^{h} 3^{m}, 67′ (*noted*) ; 21^{h} 6^{m}, 44′ ; 21^{h} 9^{m}, 22′ ; 21^{h} 12^{m}, 15′ ; 21^{h} 39^{m}, 9′ ; 21^{h} 42^{m}, 7′. Bifilar Magnet. July 3^{d} 20^{h} 58^{m}, 15^{div} ; 21^{h} 7^{m}, 12^{div} ; 21^{h} 10^{m}, 30^{div} ; 21^{h} 13^{m}, 20^{div} ; 21^{h} 19^{m}, 10^{div} ; 21^{h} 22^{m}, 10^{div} ; 21^{h} 31^{m}, 40^{div} (*noted*) ; 21^{h} 37^{m}, 40^{div} (*noted*) ; 21^{h} 55^{m}, 11^{div} ; 22^{h} 1^{m}, 11^{div} ; 22^{h} 19^{m}, 14^{div} ; 22^{h} 37^{m}, 14^{div} ; 22^{h} 52^{m}, 13^{div} ; 23^{h} 22^{m}, 12^{div} ; 23^{h} 25^{m}, 52^{div} ; 23^{h} 28^{m}, 16^{div} ; 23^{h} 43^{m}, 10^{div} ; 23^{h} 58^{m}, 20^{div} (*noted*).

See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
July 4 0	57	131·85			58	865
July 4 1	0	132·33	2	516·0	4	874
	6	131·25	7	529·4	8	868
				(532·1)		
			9	537·7		
			10	538·2	11	868
	12	131·12	13	529·2	14	876
	15	134·07	16	531·1	17	881
	18	130·25	19	535·5	20	887
	21	127·70	22	541·4	23	909
		(134·53)		(542·6)		
	24	135·22	25	547·1	26	915
				(545·5)		
	27	132·40	28	540·2	29	913
				(537·7)		
	30	135·28	31	519·7	32	929
	33	136·68	34	520·5	35	934
	36	135·95	38	526·8	40	948
	42	123·40	44	529·5	46	984
	48	128·30	50	572·4		
			52	604·4	52	1044
			53	613·2		
	54	127·50			54	1057
			56	616·4		
	58	123·87	58	630·7	59	1063
				(635·2)		
July 4 2	0	123·87	0	636·9	1	1064
	2	122·93	2	625·6	3	1038
	4	123·47	4	632·4	5	1035
	6	124·00	6	611·3	7	1037
	8	122·20	8	604·1	9	1061
	10	123·27	10	630·1	11	1063
	12	123·60	12	631·6	13	1064
	14	122·93	14	623·0	15	1079
	16	123·80				
	18	123·20	18	614·4	19	1076
				(585·1)		
	20	119·58			21	1082
	22	119·18	22	567·2	23	1079
	24	123·73	24	571·9	25	1075
			26	570·6	27	1065
	28	126·90	28	568·0	29	1062
	30	123·87	30	576·1	31	1063
	32	121·05	32	597·6	33	1054
	34	130·25	34	603·6	35	1043
	36	128·83	38	614·5	40	1027
	42	130·92	44	570·7	46	1022
	48	126·42	50	587·3	52	1003
	54	126·82	56	581·5	58	995
July 4 3	0	128·97	2	580·3	4	992
	6	128·57	8	588·2	10	968
	12	132·05	14	571·7	16	974
	18	131·12	20	577·4	22	972
	24	131·85	26	570·6	28	986
	30	128·03	32	602·5	34	1001
	36	134·20	38	590·8	40	1001
	42	133·53	44	585·4	46	1015
July 4 3	48	131·98	50	577·8	52	1017
	54	131·05	56	576·3	58	1032
July 4 4	0	125·75	2½	602·5	4	1012
	6	128·50	8	616·0	10	1000
	12	133·40	14	612·6	16	1009
	18	128·30	20	618·7	22	980
	24	130·92	26	611·1	28	989
	30	132·87	32	619·5	34	990
	36	135·22	38	613·5	40	992
	42	137·70	44	609·0	46	1007
	48	131·25	50	629·2	52	1051
	54	126·75	56	627·4	58	959
July 4 5	0	129·43	2	572·7	4	939
	6	136·08	8	533·7	10	944
	12	132·73	14	542·6	16	931
	18	132·47	19	542·9	20	922
	21	134·20	22	548·4	23	917
	24	135·08	25	550·2	26	915
	27	137·08	28	552·8	29	914
	30	137·23	31	555·1	32	917
	33	135·62	34	557·6	35	921
	36	132·47	37	560·5	38	923
	39	128·57	40	568·0	41	920
	42	127·17	43	569·0	44	917
	45	127·50	46	566·2	47	912
	48	127·50	49	565·9	50	908
	51	128·50	52	571·0	53	911
	54	129·72	55	562·7	56	914
	57	127·23	58	557·7	59	914
July 4 6	0	128·03	1	555·5	2	914
	3	127·30	4	552·2	5	915
	6	125·42	8	549·3	10	915
	12	122·27	14	551·3	16	905
	18	122·73	20	558·7	22	893
	24	127·43	26	562·2	28	884
	30	130·38	32	550·4	34	877
	36	131·52	38	544·5	40	870
	42	132·73	44	530·7	46	869
	48	131·45	50	534·6	52	865
	54	131·65	56	533·8	58	866
July 4 7	0	131·25	2	525·9	4	870
	6	130·52	8	530·3	10	867
	12	130·32	14	531·0	16	867
	18	130·92	20	531·7	22	870
	24	131·52	26	528·1	28	865
	30	131·65	32	529·9	34	864
	36	131·65	38	530·8		
July 4 9					28	823
	30	136·15	32	530·6		
					58	814
July 4 10	0	133·13	2	524·8		
July 9 4					58	862
July 9 5	0	134·33	2	565·6		
					28	897
	30	132·27	32	543·7	34	892
	36	132·93	38	548·2		

July 4^d 2^h 18^m. The reading in brackets made at 18^m 50^s. 17^m 35^s till 19^m 15^s, the Bifilar magnet went down 48^{div}.
Bifilar Thermometer. July 4^d 1^h, 59°·6; 2^h, 60°·5; 3^h, 61°·2; 5^h, 62°·4; 6^h, 62°·8; 7^h, 62°·9; 9^d 5^h, 65°·1.
Balance Thermometer. July 4^d 1^h, 59°·2; 2^h, 59°·9; 3^h, 60°·5; 5^h, 61°·7; 6^h, 62°·2; 7^h, 62°·4; 9^d 5^h, 63°·7.
Arcs of Vibration. Bifilar Magnet. July 4^d 1^h 58^m, 10^{div}; 2^h 7^m, 12^{div}; 2^h 8^m, 40^{div}; 3^h 31^m, 18^{div}.
See note, page 51, on the observations in brackets.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
July 22 19					58	779
July 22 20	0	131·75	2	521·0		
	6	131·98	8	520·7	10	778
	12	130·85	14	523·0	16	779
	18	130·18				
	28	129·17				
July 29 5	0	134·07	2	547·7		
			4	561·4		
			5	564·1		
			6	563·4		
July 31 19					58	714
July 31 20	0	124·27	2	519·1		
			3	524·2		
			4	527·3		
	10	122·00	12	520·3	14	775
	18	122·13	20	522·5		
Aug. 4 22					58	767
Aug. 4 23	0	138·92	2	517·3		
	6	138·17	8	520·2	10	754
	12	134·33	14	523·0	16	753
Aug. 5 19					58	715
Aug. 5 20	0	131·78	2	506·9		
	12	127·03	14	512·9	16	726
					28	732
	30	125·08	32	520·4		
					58	751
Aug. 5 21	0	124·55	2	521·7		
Aug. 5 22					58	792
Aug. 5 23	0	125·82	2	494·9		
	30	129·78	32	507·7	34	803
Aug. 6 0	30	131·65	32	523·6	34	799
Aug. 6 1					58	794
Aug. 6 2	0	134·82	2	529·2		
Aug. 6 4					58	881
Aug. 6 5	0	124·07	2	531·6		
			20	565·2	22	858
	24	122·40	26	573·3	28	854
	30	121·65	32	573·4		
	42	124·35	44	557·1		
			45	553·5	46	868
Aug. 6 6					58	802
Aug. 6 7	0	29·43	2	550·5		
Aug. 16 19					58	758
Aug. 16 20	0	120·15	2	532·2		
	36	126·75	32	504·3	34	700
Aug. 19 4					58	1124
Aug. 19 5	0	125·05	2	595·2		
	6	127·03	9	585·9	10	1117
	12	126·08	13	567·2		
			14	564·6	15	1104
					16	1100
	17	124·27				
Aug. 19 5	18	124·55	19	557·3		
			20	558·0	21	1080
					22	1074
	24	123·73	26	565·9	27	1044
					28	1037
	30	126·62	31	576·8		
			32	578·2	33	1011
					34	1007
	35	129·37				
	36	130·05	38	578·6	39	986
					40	984
	42	132·47	44	575·9	46	975
	48	134·88	50	572·9	52	973
					58	980
Aug. 19 6	0	134·53	2	564·7		
			8	575·0		
	18	129·43	20	555·8	22	904
	24	127·43	26	543·6	28	1000
	30	124·82				
			44	559·2	46	964
	48	125·35			52	944
					58	932
Aug. 19 7	0	127·50	2	563·1		
					22	925
	24	126·02	26	550·0		
					58	864
Aug. 19 8	0	127·50	2	537·6		
Aug. 24 4					58	846
Aug. 24 5	0	131·80	2	538·5		
	12	125·62	14	547·8	16	873
	18	124·48	20	543·3	22	874
					58	860
Aug. 24 6	0	127·17	2	548·3		
Sept. 2 1					58	767
Sept. 2 2	0	132·40	2	538·8		
Sept. 2 3					22	886
	24	131·92	26	527·2	28	893
	30	130·32	32	529·2	34	905
	36	128·37	38	536·7	40	902
	42	127·23	44	538·7	46	896
Sept. 2 4			32	544·2	34	896
	36	130·32				
					58	849
Sept. 2 5	0	130·95	2	542·5		
Sept. 2 6					2	839
Sept. 2 8	6	105·68				
	12	102·33			16	831
	18	96·49	20	534·9	22	820
	24	94·28	26	548·2	28	799
	30	100·79	32	553·3	34	790
	36	108·72	38	540·9	40	787
	42	110·32	44	544·1	46	781
	48	114·00	50	542·2	52	776
	54	115·45	56	544·2	58	771
Sept. 2 9	0	117·70	2	536·1		

Bifilar Thermometer. July 22^{d} 20^{h}, 52°·9 ; 29^{d} 5^{h}, 61°·5 ; 31^{d} 20^{h}, 60°·9 ; Aug. 4^{d} 23^{h}, 64°·7 ; 5^{d} 20^{h}, 56°·9 ; 5^{d} 21^{h}, 57°·2 ; 5^{d} 23^{h}, 58°·8 ; 6^{d} 0^{h}, 60°·6 ; 6^{d} 2^{h}, 62°·6 ; 6^{d} 5^{h}, 65°·6 ; 6^{d} 7^{h}, 67°·0 ; 16^{d} 20^{h}, 61°·3 ; 19^{d} 5^{h}, 72°·0 ; 19^{d} 6^{h}, 72°·0 ; 19^{d} 7^{h}, 71°·0 ; 19^{d} 8^{h}, 69°·9 ; 24^{d} 5^{h}, 63°·5 ; 24^{d} 6^{h}. 63°·4 ; Sept. 2^{d} 2^{h}, 65°·7 ; 2^{d} 5^{h}, 66°·2 ; 2^{d} 9^{h}, 65°·6.

Balance Thermometer. July 22^{d} 20^{h}, 53°·1 ; 31^{d} 20^{h}, 61°·3 ; Aug. 4^{d} 23^{h}, 63°·8 ; 5^{d} 20^{h}, 57°·3 ; 5^{d} 21^{h}, 57°·5 ; 5^{d} 23^{h}, 58°·6 ; 6^{d} 0^{h}, 60°·0 ; 6^{d} 2^{h}, 61°·6 ; 6^{d} 5^{h}, 64°·1 ; 6^{d} 7^{h}, 64°·1 ; 16^{d} 20^{h}, 61°·2 ; 19^{d} 5^{h}, 71°·6 ; 19^{d} 6^{h}, 71°·6 ; 19^{d} 7^{h}, 70°·8 ; 19^{d} 8^{h}, 69°·8 ; 24^{d} 5^{h}, 63°·5 ; 24^{d} 6^{h}, 63°·5 ; Sept. 2^{d} 2^{h}, 65°·2 ; 2^{d} 5^{h}, 65°·7 ; 2^{d} 9^{h}, 65°·4.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
Sept. 5 4					58	803
Sept. 5 5	0	129·25	2	553·4		
Sept. 5 6	48	115·88	50	553·9	52	865
	54	115·35	56	558·9	58	862
Sept. 5 7	12	121·65	14	550·4	16	848
Sept. 20 4					58	791
Sept. 20 5	0	135·52	2	545·5		
Sept. 20 7	36	109·45	38	584·3	40	758
	42	114·48	43	579·8		
	48	114·07	50	568·3	52	759
Sept. 20 19					28	774
	30	134·88	32	509·9		
					58	757
Sept. 20 20	0	135·42	2	525·5		
					58	760
Sept. 20 21	0	128·77	2	529·6		
					58	779
Sept. 20 22	0	131·38	2	529·8		
					58	777
Sept. 20 23	0	136·28	2	521·9		
					58	773
Sept. 21 0	0	136·48	2	545·0		
					58	766
Sept. 21 1	0	135·42	2	542·2		
					58	769
Sept. 21 2	0	137·30	2	539·0		
					58	776
Sept. 21 3	0	134·95	2	542·6		
					58	791
Sept. 21 4	0	132·73	2	544·3		
					58	808
Sept. 21 5	0	130·72	2	544·3		
					58	789
Sept. 21 6	0	129·92	2	546·4		
					58	789
Sept. 21 7	0	128·70	2	545·8		
					58	771
Sept. 21 8	0	125·28	2	557·6		
Oct. 17 4					58	764
Oct. 17 5	0	116·43	2	547·0		
	12	108·03	13	534·1	14	808
	15	107·15	16	536·4	17	811
	18	116·01	20	544·7	22	808
	24	105·08	26	556·7	28	809
	30	107·70	32	551·1	34	811
	36	109·58	38	544·1	40	814
	48	110·98	50	540·1	52	813
					58	812
Oct. 17 6	0	115·22	2	528·9		
	12	121·05	14	533·6	16	807
	30	126·35	32	534·3	34	796
Oct. 17 6	36	121·73	38	542·4	40	780
			44	548·1	46	773
Oct. 17 19					58	758
Oct. 17 20	0	126·46	2	529·3		
	40	124·48	36	531·8	35	760
Oct. 17 22					58	762
Oct. 17 23	0	126·45	2	523·7		
Oct. 18 0	2	129·43	1	537·9	0	773
Oct. 18 1	4	131·38	2	550·1	1	758
					58	747
Oct. 18 2	0	130·92	2	548·7		
Oct. 18 3	4	132·87	2	552·8	1	748
Oct. 18 4					58	767
Oct. 18 5	0	126·30	2	542·2		
Nov. 3 4					58	758
Nov. 3 5	0	133·53	2	544·0		
Nov. 3 7					56	882
					58	873
Nov. 3 8	0	117·57	2	527·2		
	12	121·05	10	532·2	14	855
Nov. 5 1					58	756
Nov. 5 2	0	131·27	2	542·7		
Nov. 5 3	30	130·07				
Nov. 5 4	0	128·87	2	544·5	4	758
	30	128·17	32	545·0	34	753
					58	761
Nov. 5 5	0	127·65	2	544·2		
	42	127·70	44	545·2	46	755
Nov. 5 6	0	126·87	2	550·0	4	743
	30	127·18	32	547·9	34	733
Nov. 9 19					58	704
Nov. 9 20	0	126·02	2	543·8		
Nov. 9 21	3	123·80	0	536·5	0	747
Nov. 9 22					58	745
Nov. 9 23	0	134·95	2	521·1		
			33	515·6	32	758
Nov. 10 0			1	525·1	0	773
Nov. 10 1	30	140·32	21	526·3	20	774
					58	776
Nov. 10 2	0	138·37	2	548·4		
Nov. 10 3	3	133·07	2	539·2	0	786
	49	125·42	48	512·6	46	851
Nov. 10 4	25	117·83	26	536·5	28	828
	30	119·65				
Nov. 10 4	48	126·90	50	538·0	52	809
					58	801
Nov. 10 5	0	126·97	2	544·0		
					58	805
Nov. 10 6	0	129·43	2	533·5		
Nov. 10 19					58	718

Bifilar Thermometer. Sept. 5^{d} 5^{h}, 59°·8 ; 5^{d} 7^{h}. 60°·5 ; 20^{d} 5^{h}, 62°·4 ; 20^{d} 7^{h}, 63°·0 ; 20^{d} 20^{h}, 50°·4 ; 20^{d} 23^{h}, 52°·3 ; 21^{d} 2^{h}, 58°·6 ; 21^{d} 5^{h}, 61°·4 ; 21^{d} 7^{h}, 60°·0 ; 21^{d} 10^{h}, 57°·8 ; Oct. 17^{d} 5^{h}, 51°·0 ; 17^{d} 6^{h}, 50°·8 ; 17^{d} 20^{h}, 46°·5 ; 17^{d} 23^{h}, 46°·0 ; 18^{d} 0^{h}, 49°·3 ; 18^{d} 1^{h}, 55°·1 ; 18^{d} 2^{h}, 57°·4 ; 18^{d} 3^{h}, 59°·2 ; 18^{d} 5^{h}, 57°·5 ; Nov. 3^{d} 5^{h}, 57°·7; 3^{d} 8^{h}, 56°·2 ; 5^{d} 2^{h}, 54°·5 ; 5^{d} 5^{h}, 55°·3 ; 5^{d} 6^{h} 30^{m}, 55°·9 ; 9^{d} 20^{h}, 48°·4 ; 9^{d} 21^{h}, 48°·4 ; 9^{d} 23^{h}, 48°·5 ; 10^{d} 0^{h}, 51°·2 ; 10^{d} 1^{h} 30^{m}, 54°·1 ; 10^{d} 2^{h}, 54°·4 ; 10^{d} 3^{h}, 54°·7 ; 10^{d} 5^{h}, 55°·5 ; 10^{d} 6^{h}, 54°·5.

Balance Thermometer. Sept. 5^{d} 5^{h}, 58°·9 ; 5^{d} 7^{h}, 59°·0 ; 20^{d} 5^{h}, 60°·4 ; 20^{d} 7^{h}, 60°·0 ; 20^{d} 20^{h}, 50°·8 ; 20^{d} 23^{h}, 52°·6 ; 21^{d} 2^{h}, 58°·1 ; 21^{d} 5^{h}, 60°·4 ; 21^{d} 7^{h}, 60°·8 ; 21^{d} 10^{h}, 57°·9 ; Oct. 17^{d} 5^{h}, 50°·6 ; 17^{d} 6^{h}, 50°·5 ; 17^{d} 20^{h}, 46°·9 ; 17^{d} 23^{h}, 46°·4 ; 18^{d} 0^{h}, 49°·6 ; 18^{d} 1^{h}, 56°·2 ; 18^{d} 2^{h}, 57°·9 ; 18^{d} 3^{h}, 59°·6 ; 18^{d} 5^{h}, 57°·6 ; Nov. 3^{d} 5^{h}, 57°·8 ; 3^{d} 8^{h}, 57°·6 ; 5^{d} 2^{h}, 55°·8 ; 5^{d} 5^{h}, 56°·8 ; 5^{d} 6^{h} 30^{m}, 61°·0 ; 9^{d} 20^{h}, 50°·1 ; 9^{d} 21^{h}, 50°·8 ; 9^{d} 23^{h}, 50°·3 ; 10^{d} 0^{h}, 53°·4 ; 10^{d} 1^{h} 30^{m}, 55°·4 ; 10^{d} 2^{h}, 55°·4 ; 10^{d} 3^{h}, 55°·7 ; 10^{d} 3^{h} 50^{m}, 57°·6 ; 10^{d} 5^{h}, 56°·7 ; 10^{d} 6^{h}, 56°·7.

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
Nov. 10 20	0	132·64	2	521·9		
	30	131·92	32	535·7	34	719
Nov. 10 22					58	755
Nov. 10 23	0	126·70	2	530·3		
Nov. 11 1			32	532·5	33	752
					58	750
Nov. 11 2	0	130·50	2	539·9		
					58	754
Nov. 11 3	0	128·37	2	540·7		
			41	541·2	40	766
Nov. 19 3	30	127·57	32	545·0	34	719
Nov. 19 4	0	127·35	2	546·6	4	715
	30	126·82	32	546·0	34	719
Nov. 19 6	0	127·00	2	550·3	4	713
	42	125·85	44	551·8	46	707
Nov. 19 7	0	126·02	2	550·9	4	704
	21	125·88	26	549·7	28	704
	54	125·33	56	550·6	58	704
Nov. 21 19					58	647
Nov. 21 20	0	127·94	2	500·2		
	18	137·50	14	502·5	16	669
	30	139·58	32	507·3	34	693
	48	140·98	44	516·9	46	694
Nov. 21 21	4	137·43	2	521·2	0	721
	18	135·33	16	527·8	20	740
Nov. 22 1					58	807
Nov. 22 2	0	130·72	2	528·7		
	54	126·08	56	543·9	58	871
Nov. 22 3	0	129·72	2	545·1	4	872
	6	130·32	8	545·6		
	42	129·98	44	541·2	40	862
Nov. 22 4					58	829
Nov. 22 5	0	127·63	2	539·6		
Dec. 5 19					58	711
Dec. 5 20	0	129·55	2	534·5		
			20	547·6	22	697
	24	128·97	26	554·8	28	691
	30	130·12	32	553·2	34	688
	36	129·72	38	558·1	40	685
Dec. 5 20	42	129·03	44	557·0	46	681
	48	128·37	50	556·5	52	680
	54	128·37	56	553·2	58	686

Göttingen Mean Time.	DECLINATION.		BIFILAR.		BALANCE.	
	Min. of Obs.	Reading Reduced.	Min. of Obs.	Reading Corrected.	Min. of Obs.	Reading Corrected.
d. h.	m.	′	m.	Sc. Div.	m.	Mic. Div.
Dec. 9 4					58	755
Dec. 9 5	0	125·45	2	539·4		
	18	125·75	20	531·4	22	765
	24	125·02	26	538·0	28	768
	30	125·02	32	538·0	34	783
	36	122·53	38	539·6	40	800
	42	118·23	44	550·8	46	813
	48	112·53	50	553·0	52	796
	54	109·58	56	544·3	58	775
Dec. 9 6	0	112·13	2	542·6	4	768
	6	116·08	8	544·1	10	765
	12	120·65	14	541·3	16	769
	18	125·88	20	536·5	22	789
	24	120·45	26	544·9	28	781
	30	127·37	32	535·7	34	785
	36	129·52	38	529·7	40	802
	42	128·43	44	533·2	46	819
	48	125·15	50	541·2	52	841
	54	122·60	56	537·6	58	868
Dec. 9 7	0	119·58	2	533·6	4	890
	6	110·12	8	530·9	10	863
	12	112·13	14	534·7	16	841
	18	113·47	20	525·8	22	837
	24	113·27	26	533·5	28	820
	30	116·08	32	525·1	34	818
	36	115·28	38	527·2	40	831
	42	112·13	44	542·2	46	831
	48	121·05	50	527·6	52	843
	54	118·10	56	520·6	58	847
Dec. 9 8	0	113·47	2	530·8	4	834
	6	121·05	8	527·5	10	835
	24	136·22	26	510·4	28	876
	30	127·30	32	530·4	34	896
	36	113·60	38	527·4	40	846
	42	118·10	44	536·4	46	819
Dec. 17 1					58	711
Dec. 17 2	0	126·55	2	550·7		
Dec. 17 3	30	125·52	32	549·1	34	712
Dec. 17 4	0	125·43	2	548·7	4	709
	18	126·32	20	549·0	22	709
	42	124·92	44	550·1	46	707
Dec. 17 5	0	125·35	2	549·4	4	704
	24	125·05	26	549·2	28	695

Bifilar Thermometer. Nov. 10^{d} 20^{h}, 49°·4; 10^{d} 23^{h}, 50°·2; 11^{d} 1^{h} 30^{m}, 57°·8; 11^{d} 2^{h}, 57°·8; 11^{d} 3^{h}, 58°·2; 19^{d} 2^{h}, 51°·9; 19^{d} 5^{h}, 57°·8; 19^{d} 8^{h}, 58°·6; 21^{d} 20^{h}, 43°·4; 21^{d} 21^{h}, 44°·5; 22^{d} 2^{h}, 50°·8; 22^{d} 3^{h}, 52°·1; 22^{d} 3^{h} 45^{m}, 53°·2; 22^{d} 5^{h}, 51°·9; Dec. 5^{d} 20^{h}, 52°·8; 5^{d} 21^{h}, 52°·9; 9^{d} 5^{h}, 56°·3; 9^{d} 6^{h}, 56°·4; 9^{d} 7^{h}, 56°·8; 9^{d} 8^{h}, 56°·9; 17^{d} 2^{h}, 56°·5; 17^{d} 5^{h}, 57°·8.

Balance Thermometer. Nov. 10^{d} 20^{h}, 50°·6; 10^{d} 23^{h}, 51°·3; 11^{d} 1^{h} 30^{m}, 59°·6; 11^{d} 2^{h}, 59°·2; 11^{d} 3^{h}, 59°·5; 19^{d} 2^{h}, 52°·9; 19^{d} 5^{h}, 58°·5; 19^{d} 8^{h}, 60°·1; 21^{d} 20^{h}, 45°·1; 21^{d} 21^{h}, 47°·3; 22^{d} 2^{h}, 52°·3; 22^{d} 3^{h}, 53°·8; 22^{d} 3^{h} 45^{m}, 54°·2; 22^{d} 5^{h}, 53°·6; Dec. 5^{d} 20^{h}, 54°·1; 5^{d} 21^{h}, 54°·2; 9^{d} 5^{h}, 57°·3; 9^{d} 6^{h}, 57°·5; 9^{d} 7^{h}, 57°·8; 9^{d} 8^{h}, 58°·0; 17^{d} 2^{h}, 58°·2; 17^{d} 5^{h}, 59°·8.

OBSERVATIONS OF MAGNETIC DIP.

1841 AND 1842.

Göttingen Mean Time, Commencement of Observations.	Duration of Observation.	Thermometer.	No. of Needle.	MEAN OF READINGS.		A. North *Minus* B. North.	Observed Dip.	REMARKS.
				End A. North.	End B. North.			
d. h. m.	m.	°		° ′	° ′	′	° ′	
1841.								
Apr. 29				71 29·13	71 24·00	+ 5·13	71 26·56	Unsatisfactory observation. Instrument out of adjustment. Observers, Professor Forbes and Mr. Russell.
July 7 1 0		61·0	1	71 19·4	71 28·4	− 9·00	71 23·9	Double observation; unsatisfactory. Needle continually getting into contact with limb. Observers, Mr. Main and Mr. Russell.
July 20 6 0			2	71 15·50	71 29·37	−13·87	71 22·45	
July 20 7 10		60·0	1	71 23·12	71 23·00	+ 0·12	71 23·06	
Sept. 6 6 5			1	71 27·12	71 21·12	+ 6·00	71 24·12	
Sept. 6 6 55			2	71 19·62	71 32·37	−12·75	71 26·00	
Sept. 14 5 0		69·0	1	71 29·00	71 27·50	+ 1·50	71 28·25	
Sept. 14 5 45		69·0	2	71 19·62	71 35·25	−15·63	71 27·44	
Sept. 27 20 20		55·0	1	71 29·38	71 23·00	+ 6·38	71 26·19	
Oct. 4 20 40		55·0	1	71 35·62	71 30·38	+ 5·24	71 33·00	
Oct. 8 5 15		56·5	1	71 30·75	71 18·25	+12·50	71 24·50	
Oct. 11 20 20		45·5	1	71 28·88	71 20·25	+ 8·63	71 24·56	
Oct. 15 5 10		48·0	1	71 38·38	71 21·38	+17·00	71 29·88	
Oct. 18 20 20		38·0	1	71 43·75	71 23·87	+19·88	71 33·81	
Oct. 22 5 15		48·0	1	71 38·25	71 16·25	+22·00	71 27·25	
Oct. 25 20 20		40·0	1	71 37·25	71 25·37	+11·88	71 31·31	
Oct. 29 5 20		52·6	1	71 28·12	71 17·75	+10·37	71 22·94	
Nov. 1 20 15		37·0	1	71 28·88	71 22·62	+ 6·26	71 25·75	
Nov. 5 5 10		50·0	1	71 26·38	71 22·00	+ 4·38	71 24·19	
Nov. 8 20 15		49·6	1	71 31·38	71 24·62	+ 6·76	71 28·00	
Nov. 12 5 20		44·5	1	71 29·75	71 26·37	+ 3·38	71 28·06	
Nov. 15 20 20		28·5	1	71 23·38	71 30·00	− 6·62	71 26·69	
Nov. 19 5 10		45·0	1	71 22·25	71 26·00	− 3·75	71 24·12	
Nov. 22 20 20		36·3	1	71 26·00	71 10·88	+15·12	71 18·44	
Nov. 26 6 45			1	71 32·25	71 17·00	+15·25	71 24·62	
Nov. 29 20 20		45·0	1	71 18·88	71 25·62	− 6·74	71 22·25	
Dec. 28 2 0			1	71 28·88	71 17·75	+11·13	71 23·31	This and the two following observations made by Professor Forbes.
Dec. 28 23 0			2	71 21·00	71 33·00	−12·00	71 27·00	A small knife in the observer's pocket while observing B. North.
Dec. 29 0 10			2	71 16·38	71 30·62	−14·24	71 23·50	
1842.								
Jan. 14 5 10		47·0	1	71 24·25	71 17·62	+ 6·63	71 20·94	
Jan. 17 20 20		38·0	1	71 27·00	71 11·62	+15·38	71 19·31	
Jan. 24 20 10		39·0	1	71 26·50	71 20·00	+ 6·50	71 23·25	
Jan. 28 5 10		51·0	1	71 23·25	71 25·50	− 2·25	71 24·38	
Jan. 31 20 15		45·0	1	71 23·88	71 22·62	+ 1·26	71 23·25	
Feb. 4 5 10		53·0	1	71 28·75	71 22·88	+ 5·87	71 25·81	
Feb. 7 20 20		45·0	1	71 31·25	71 22·50	+ 8·75	71 26·88	
Feb. 11 5 15		53·0	1	71 27·62	71 20·50	+ 7·12	71 24·06	
Feb. 14 20 25		51·0	1	71 27·12	71 23·88	+ 3·24	71 25·50	
Feb. 18 5 15		56·0	1	71 30·12	71 26·88	+ 3·24	71 28·50	
Feb. 21 20 20		40·0	1	71 24·62	71 23·78	+ 0·84	71 24·20	
Feb. 25 5 20		49·0	1	71 25·00	71 26·50	− 1·50	71 25·75	
Mar. 4 5 20		55·0	1	71 27·00	71 21·37	+ 5·63	71 24·19	
Mar. 7 20 15		49·0	1	71 26·62	71 21·25	+ 5·37	71 23·94	
Mar. 11 5 20		53·0	1	71 28·50	71 18·62	+ 9·88	71 23·56	
Mar. 14 20 30		50·0	1	71 26·50	71 23·75	+ 2·75	71 25·12	

Göttingen Mean Time, Commencement of Observations.	Duration of Observation.	Thermometer.	No. of Needle.	Mean of Readings.		A. North *Minus* B. North.	Observed Dip.	Remarks.
				End A. North.	End B. North.			
d. h. m.	m.	°		° ′	° ′	′	° ′	
Mar. 18 5 25		48·0	1	71 27·37	71 18·00	+ 9·37	71 22·69	
Mar. 21 20 30		45·0	1	71 30·12	71 21·12	+ 9·00	71 25·62	
Mar. 25 5 5		55·0	1	71 30·12	71 9·87	+20·25	71 20·00	
Mar. 28 20 20		45·0	1	71 29·25	71 11·37	+17·88	71 20·31	
Apr. 1 5 20		49·0	1	71 29·37	71 21·87	+ 7·50	71 25·62	
Apr. 4 20 45		44·0	1	71 28·62	71 27·37	+ 1·25	71 28·00	
Apr. 8 5 30		55·0	1	71 24·50	71 18·75	+ 5·75	71 21·62	
Apr. 11 20 45		42·0	1	71 28·87	71 23·87	+ 5·00	71 26·37	
Apr. 15 6 0		47·0	1	71 24·37	71 25·37	− 1·00	71 24·87	
Apr. 18 20 10			1	71 26·12	71 20·87	+ 5·25	71 23·50	
Apr. 22 5 20		62·0	1	71 28·00	71 32·62	− 4·62	71 30·31	This and the previous observations, with the exceptions noted, were made by Mr. Russell.
Apr. 25 20 20		49·0	1	71 30·00	71 34·87	− 4·87	71 32·44	This and the following observations were made by me. J. A. B.
Apr. 29 5 25	65	61·4	1	71 24·62	71 24·87	− 0·25	71 24·75	It is possible that in some of the readings for this observation the divisions of the limb had been taken for 5′ instead of 10′.
May 6 5 40	160	57·0	1	71 28·12	71 19·62	+ 8·50	71 23·89	Levelled the agate planes, care being taken that the glass door was shut, as in shutting it exerts a pressure on the bottom of the box.
May 9 20 20	100	47·2	1	71 32·37	71 25·87	+ 6·50	71 29·12	Although great care and much time was bestowed on this observation, it can hardly be considered good, very different readings being obtained after repeatedly lifting the needle on the Y's.
May 13 6 20	85	63·1	1	71 28·25	71 18·37	+ 9·88	71 23·31	Level of agate planes verified. In this observation the needle was placed carefully on the agates, lifted by the Y's, gently let down and allowed to vibrate through about 10°; then, when at rest, read.
May 16 20 10	55	55·0	1	71 23·87	71 17·25	+ 6·62	71 20·56	This observation made in the same way as last.
May 20 5 20	85	57·0	1	71 29·50	71 25·62	+ 3·88	71 27·56	Level of agates verified.
May 23 21 45	60	55·0	1	71 21·87	71 24·87	− 3·00	71 23·37	
May 30 20 15	90	55·5	1	71 31·12	71 15·00	+16·12	71 23·06	
June 3 5 15	120	69·0	1	71 25·87	71 16·12	+ 9·75	71 20·37	The observations of June 3^{d} were made in order to determine the effect, on the final result, of lifting the needle on the Y's one, two, or three times. See Note below. While changing the poles the needle fell upon the carpet from a height of about two feet.
			1	71 31·75	71 15·62	+16·13	71 23·69	
			1	71 30·25	71 15·50	+14·75	71 22·87	
June 6 20 45	120	59·5	1	71 37·88	71 12·00	+25·88	71 24·94	This result obtained in the same way as the second result, June 3^{d}.
June 10 5 15	90	65·6	1	71 32·88	71 8·75	+24·13	71 20·81	Id.
June 13 21 30	75	65·0	1	71 32·62	71 16·12	+16·50	71 24·37	In some of the readings the needle had to be lifted frequently before a satisfactory observation could be made.
June 17 5 20	100	61·0	1	71 33·12	71 14·00	+19·12	71 23·56	Allowing the needle to vibrate through 10° has not been found satisfactory. The needle is now checked near its supposed position of rest, and is lifted and lowered by the Y's till satisfied that lifting does not alter the reading.
June 20 20 15	85	60·0	1	71 38·00	71 7·88	+30·12	71 22·94	
June 24 5 35	105	65·5	1	71 33·88	71 12·50	+21·38	71 23·19	Great care taken with this observation.
June 27 20 25	70	56·0	1	71 38·50	71 12·75	+25·75	71 25·56	
July 1 5 20	85	67·3	1	71 36·00	71 12·37	+23·63	71 24·19	
July 4 21 0	85	60·5	1	71 40·38	71 16·12	+24·26	71 28·25	
July 8 7 0	120	61·7	1	71 38·50	71 15·00	+23·50	71 26·75	

June 3^{d}. The needle was checked so as to allow it, when lowered on the agates, to vibrate through 10°. After coming to rest the position was read. The first result, June 3^{d}, was obtained from the readings made in this way. After each of the readings for the first result, the needle was lifted by the Y's and lowered gently (the arc of vibration being small) and again read;—these readings give the second result. The needle being lifted, &c., as in the second case, a third result was obtained.

OBSERVATIONS OF MAGNETIC DIP, JULY 11—DECEMBER 30. 1842.

Göttingen Mean Time, Commencement of Observations.	Duration of Observation.	Thermometer.	No. of Needle.	MEAN OF READINGS.		A. North *Minus* B. North.	Observed Dip.	REMARKS.
				End A. North.	End B. North.			
d. h. m.	m.	°		° ′	° ′	′	° ′	
July 11 20 45	80	59·5	1	71 40·00	71 13·12	+26·88	71 26·56	
July 15 7 10	120	68·5	1	71 33·38	71 14·62	+18·76	71 24·00	
July 18 20 40	120	60·0	1	71 37·50	71 12·50	+25·00	71 25·00	
July 22 6 20	85	64·3	1	71 33·50	71 14·88	+18·62	71 24·19	
July 25 21 10	70	62·1	2	71 15·12	71 40·62	−25·50	71 27·87	Needle No. 2 taken by mistake.
July 29 6 50	150	61·7	1	71 41·38	71 12·38	+29·00	71 26·88	
Aug. 1 20 40	90	63·0	1	71 45·75	71 11·88	+33·87	71 28·81	
Aug. 5 6 25	170	66·5	2	71 24·38	71 37·12	−12·74	71 30·75	This observation is not considered good, though much time was bestowed on it. Owing to the bad balance of the needle, or the action of the lifter, no reading was considered perfectly satisfactory.
Aug. 8 20 20	75	63·2	1	71 32·50	71 22·75	+ 9·75	71 27·62	
Aug. 15 20 30	90	62·5	1	71 28·88	71 23·75	+ 5·13	71 26·31	
Aug. 22 20 35	115	60·8	1	71 44·00	71 15·88	+28·12	71 26·19	
Aug. 29 20 30	105	63·0	1	71 27·50	71 12·75	+14·75	71 20·12	This observation is scarcely worth recording. No reading could be obtained, after lifting and lowering the needle, the same as before. The greatest care was taken, and the readings, in each position, made from 6 to 10 times before one was adopted.
Sept. 2 6 35	30	66·1	1	71 35·62	71 18·25	+17·37	71 26·94	Considered a good observation, though made in a comparatively short time.
Sept. 5 20 20	50	58·0	1	71 36·00	71 14·50	+21·50	71 25·25	
Sept. 9 6 20	60	63·0	1	71 35·00	71 13·00	+22·00	71 24·00	
Sept. 12 20 25	40	54·3	1	71 33·62	71 13·25	+20·37	71 23·44	
Sept. 16 6 40	40	65·9	1	71 36·12	71 12·38	+23·74	71 24·25	
Sept. 19 21 20	25	54·0	1	71 37·88	71 12·12	+25·76	71 25·00	
Sept. 23 6 10	35	59·0	1	71 36·38	71 11·62	+24·76	71 24·00	
Sept. 26 20 25	25	51·0	1	71 36·38	71 15·25	+21·13	71 25·81	
Sept. 30 6 10	25	55·0	1	71 36·12	71 13·00	+23·12	71 24·56	
Oct. 3 20 25	25	41·8	1	71 35·75	71 11·37	+24·38	71 23·56	
Oct. 7 5 25	20	57·3	1	71 33·88	71 11·62	+22·26	71 22.55	All the observations since August 29. are considered very good,—none of them were hurried.
Oct. 10 20 20	25	53·8	1	71 33·00	71 11·25	+21·75	71 22·12	
Oct. 14 5 25	25	57·8	1	71 32·75	71 12·00	+20·75	71 22·38	
Oct. 17 20 45	20	45·4	1	71 34·88	71 9·75	+25·13	71 22·31	
Oct. 24 20 25	25	36·8	1	71 34·00	71 10·62	+23·38	71 22·31	In changing the poles the needle received, by mistake, 10 strokes instead of 8 on each side.
Oct. 28 5 30	40	53·5	1	71 35·38	71 13·50	+21·88	71 24·44	This observation made by candle light, and is not considered so good as the others.
Oct. 31 20 30	25	55·3	1	71 33·25	71 11·88	+21·37	71 22·56	
Nov. 4 5 20	25	54·2	1	71 32·25	71 10·12	+22·13	71 21·17	Observation not quite satisfactory.
Nov. 7 21 5	30	50·3	1	71 32·38	71 9·62	+22·76	71 21·00	Instrument levelled. A considerable change took place in the readings on this occasion, compared with those in the same positions previously. Good observation.
Nov. 11 5 50	30	55·8	1	71 30·75	71 5·50	+25·25	71 18·12	Good observation.
Nov. 14 21 0	35	47·0	1	71 34·62	71 8·25	+25·37	71 21·44	
Nov. 18 5 25	40	54·6	1	71 25·88	71 7·12	+18·76	71 16·50	Considered a fair observation.
Nov. 28 20 35	40	54·0	1	71 32·75	71 9·12	+23·63	71 20·94	
Dec. 5 23 20	30	55·0	1	71 31·75	71 8·75	+23·00	71 20·25	Good observation.
Dec. 12 20 35	40	58·2	1	71 35·62	71 10·25	+24·37	71 22·94	Fair observation.
Dec. 15 5 35	25	60·0	1	71 35·75	71 9·88	+25·87	71 22·81	Good observation.
Dec. 19 20 35	35	53·5	1	71 31·62	71 11·62	+20 00	71 21·62	
Dec. 26 20 50	50	48·5	1	71 32·50	71 7·88	+25·62	71 20·19	Good observation.
Dec. 30 5 50	60	61·7	1	71 29·12	71 11·25	+17·87	71 20·19	Observed by Mr. Welsh.

OBSERVATION

OF

ABSOLUTE HORIZONTAL INTENSITY.

MARCH 26. 1842.

OBSERVATIONS OF DEFLECTION.				BIFILAR MAGNETOMETER.		OBSERVATIONS OF VIBRATION.				BIFILAR MAGNETOMETER.		
DEFLECTING BAR.												
Distance.	N. End.	Mean Readings of Suspended Magnet.	Mean Deflection.	Readings.	Thermometer.	S. End Moving W.	60 Vibrations.	S. End Moving E.	60 Vibrations.	Time of Observation.	Readings.	Thermometer.
Ft.		Sc. Div.	Sc. Div.	Sc. Div.	°	h. m. s.	m. s.	h. m. s.	m. s.	h. m. s.	Sc. Div.	°
5·25 W.	W.	36·61	212·37	153·9	54·0	3 16 33·0		3 16 49·0		3 18 30	161·5	56·0
	E.	461·34		150·3	54·4	21 35·4		21 51·0		21 0	166·6	56·0
8·50 W.	E.	308·13	60·57	156·2	55·2	26 37·3		26 53·0		23 30	166·8	56·0
	W.	186·98		149·2	54·8	31 39·4	15 6·4	31 55·3	15 6·3	26 0	166·0	56·0
8·50 E.	E.	307·09	59·87	151·2	55·8	36 41·6	15 6·2	36 57·4	15 6·4	28 30	164·5	55·9
	W.	187·35		152·3	56·0	41 43·6	15 6·3	41 59·4	15 6·4	31 0	162·3	55·9
5.25 E.	W.	35·45	211·61	151·3	56·2	46 45·9	15 6·5	47 1·6	15 6·3	33 30	162·2	55·8
	E.	458·68		153·1	56·3					36 0	159·5	55·7
										38 30	160·0	55·7
										41 0	160·4	55·6
										43 30	158·7	55·5
										46 0	156·4	55·4

$r = 5{\cdot}25$ feet. Mean deflection 211·99 Sc. Div. $u = 2^\circ\ 22'\ 14''{\cdot}7$

$r' = 8{\cdot}50$ ··· ····················· 60·22 ········· $u' = 0^\circ\ 40'\ 24''{\cdot}4$

Observed mean time of one vibration, $T' = 15^{\mathrm{s}}{\cdot}1058$.

Mean Bifilar, $\left\{\begin{matrix}\text{Reading}\\ \text{Thermom.}\end{matrix}\right\}$ during deflections, $\left\{\begin{matrix}152{\cdot}2^{\text{div.}}\\ 55^\circ{\cdot}35\end{matrix}\right\}$ Reading corrected, $523{\cdot}8^{\text{div.}}$

Mean Bifilar, $\left\{\begin{matrix}\text{Reading}\\ \text{Thermom.}\end{matrix}\right\}$ during vibrations, $\left\{\begin{matrix}162{\cdot}1^{\text{div.}}\\ 55^\circ{\cdot}8\end{matrix}\right\}$ Reading corrected, $534{\cdot}8^{\text{div.}}$

Difference of Bifilar readings during deflections and vibrations corrected $= \dfrac{\Delta X}{X} + \dfrac{\Delta m}{m} = 11{\cdot}0$ Sc. div.

$= {\cdot}00137$ in parts of force.

$\dfrac{H}{F} = 0{\cdot}000994$. (See *Introduction* for value of $\dfrac{H}{F}$, March 3. 1842.)

Semi arc $\left\{\begin{matrix}\text{at commencement}\\ \text{at termination}\end{matrix}\right\}$ of vibrations, $\left\{\begin{matrix}\alpha = 10^\circ\\ \alpha' = 6^\circ\end{matrix}\right.$

Deflecting bar, $\left\{\begin{matrix}\text{Length, } a = 1{\cdot}25 \text{ feet,}\\ \text{Breadth, } b = 0{\cdot}0719 \text{ feet,}\\ \text{Weight, } W = 6216{\cdot}7 \text{ grains.}\end{matrix}\right.$

From the formulæ below there has been obtained $X = 2{\cdot}9662$.

$$\text{Moment of inertia } K = \frac{a^2 + b^2}{12} W.$$

$$T'\left(1 + \frac{H}{2F} - \frac{\alpha\,\alpha'}{16}\right) = T, \text{ time of vibration corrected.}$$

$$\frac{\pi^2 K}{T^2}\left(1 + \frac{\Delta X}{X} + \frac{\Delta m}{m}\right) = m\,X \text{ at the period of deflections.}$$

$$\left(1 + \frac{H}{F}\right) \cdot \frac{r'^5 \tan u' - r^5 \tan u}{2\,(r'^2 - r^2)} = \frac{m}{X}.$$

The hours of the deflection observations have not been registered.

The arcs of vibration were not registered. The above have been estimated from a remembrance that Mr. Russell used rather large arcs of vibration, and from other considerations. The times of vibration were obtained from the clock in the observatory; the rate is not registered, but it was generally very small.

The notation and formulæ above are those used in the Report of the Royal Society.

DAILY METEOROLOGICAL OBSERVATIONS.

1841 AND 1842.

DAILY METEOROLOGICAL OBSERVATIONS, JULY 11—AUGUST 5. 1841.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
				Dry.	Wet.	Max. and Min.		
	d.	h.	in.	°	°	°	in.	
July	11	20	29·290	......	......			
		23	29·313	......	......			
July	12	2	29·322	......	......			
		5	29·306	......	......			
		20	29·365	51·4	48·9	63·1		
		23	29·381	55·7	50·2	46·3	0·02	
July	13	2	29·396	55·5	49·7			
		5	29·393	56·4	51·3			
		20	29·426	52·6	51·5	57·6		
		23	29·400	56·6	52·3	49·9	0·35	
July	14	2	29·414	58·5	54·4			
		5	29·416	55·9	53·4			
		20	29·431	53·2	51·8	59·0		
		23	29·453	53·3	52·5	50·1	0·54	
July	15	2	29·503	56·8	53·6			
		5	29·550	58·4	53·9			
		20	29·770	48·7	45·6	59·9		
		23	29·785	52·7	47·6	47·8	0·04	
July	16	2	29·758	58·1	51·7			
		5	29·740	60·8	54·7			
		20	29·712	54·6	48·6	61·5		
		23	29·637	59·3	51·0	42·2	0·00	
July	17	2	29·683	62·0	55·4			
		5	29·635	63·2	55·5			
July	18	20	....	......	......	65·7		
		23	29·552	62·2	56·1	53·2	0·02	
July	19	2	29·535	67·4	58·0			
		5	29·512	62·6	58·0			
		20	29·395	54·2	52·0	69·7		
		23	29·344	60·5	56·0	45·5	0·20	
July	20	2	29·266	61·5	54·4			
		5	29·236	58·2	54·1			
		20	29·177	54·3	52·7	63·6		
		23	29·176	56·2	53·9	52·5	0·47	
July	21	2	29·184	58·8	54·2			
		5	29·242	59·7	55·5			
		20	29·349	54·4	49·7			
		23	29·401	53·7	50·6	48·6?	0·00	
July	22	2	29·462	56·5	52·4			
		5	29·511	56·2	52·0			
		20	....	......	......	60·6		
		23	29·728	52·2	50·3	51·3	0·01	
July	23	2	29·779	53·2	51·4			
		5	29·819	54·5	50·8			
Aug.	4	20	29·372	51·7	50·7	63·9		Rain.
		23	29·308	55·5	54·4	49·5	0·27	Id.
Aug.	5	2	29·237	60·8	58·1			Cloudy.
		5	29·140	63·2	60·2			Heavy rain.

The maximum and minimum temperatures given, with exceptions noted, are the greatest and least which have occurred since the previous observation. The register thermometers were read between 20^h and 23^h.

The quantity of rain is always the quantity fallen since the previous observation. The gauge was read at 1^h.

Aug. 4^d 21^h. The maximum and minimum temperatures given are supposed to be those of the preceding 24 hours.

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Aug. 5 20	29·104	58·3	56·5	63·5		Cloudy.
23	29·180	57·5	54·4	54·2	0·34	Id.: light rain.
Aug. 6 2	29·269	59·1	54·7			Id.: sunshine at intervals.
5	29·336	56·7	52·8			Id.
20	29·449	57·2	54·7	59·4		Fair: wind WSW.
23	29·459	62·9	58·4	48·5	0·00	Id.: wind WSW.
Aug. 7 2	29·461	59·8	57·1			Thick clouds: wind S.
5	29·439	62·4	58·2			Fair: wind SW.
Aug. 8 20	29·275	55·2	52·1	64·2		Fair.
23	29·254	58·4	53·2	45·6	0·64	
Aug. 9 2	29·175	58·1	53·9			Fine and clear; heavy showers at intervals.
5	29·232	57·5	51·2			Cloudy.
20	………	……	……	59·9		
23	29·361	56·3	51·9	47·5	0·01	
Aug. 10 2	29·402	57·8	51·9			
5	29·422	58·8	53·4			
20	29·394	48·0	45·7	59·1		Cloudy.
23	29·374	54·7	51·8	40·7	0·00	Id.
Aug. 11 2	29·374	54·7	51·7			Id.: high wind.
5	29·369	54·7	50·8			Id.: id.
20	29·548	52·4	46·6	55·1		
23	29·569	55·7	48·7	43 4	0·00	
Aug. 12 2	29·591	58·5	50·7			
5	29·596	57·2	50·8			
20	29·564	47·5	45·4	59·3		Fine and clear.
23	29·545	59·5	54·6	37·3	0·00	Cloudy.
Aug. 13 2	29·539	59·0	55·0			Heavy clouds: light rain.
5	29·489	56·9	55·1			Rain.
20	29·321	54·4	53·2	63·2		Rain.
23	29·292	55·9	55·1	52·4	0·37	Id.
Aug. 14 2	29·305	57·4	56·0			Clouds breaking.
5	29·315	57·0	55·9			Heavy rain.
Aug. 15 20	29·622	51·2	50·0	66·7		Fair.
23	29·618	61·1	58·3	44·0	0·33	Id.
Aug. 16 2	29·613	67·0	62·1			Id.
5	29·553	64·5	59·7			Fair but cloudy.
20	29·495	58·8	56·9	67·3		Light rain.
23	29·552	58·4	52·9	55·1	0·00	Fair.
Aug. 17 2	29·640	60·0	52·5			Id.
5	29·707	60·0	51 4			Id.: fresh breeze.
20	29·903	49·6	47·5	61·1		Fair.
23	29·916	61·0	56·4	40·0	0·00	Id.
Aug. 18 2	29·913	61·4	54·8			Id.
5	29·912	61·1	55·2			Id.
20	29·854	55·8	52·6	63·0		Fair and clear.
23	29·850	62·3	57·7	……	0·00	Fair: cloudy.
Aug. 19 2	………	……	……			
5	29·823	63·4	60·1			Heavy clouds.
20	29·679	60·8	59·0	67·1		Fair: hazy.
23	29·606	62·5	58·6	54·0	0·00	Id.: id.
Aug. 20 2	29·510	69·4	61·2			Id.: id.
5	29·488	70·4	62·4			Id.: cloudy.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
				Dry.	Wet.	Max. and Min.		
	d.	h.	in.	°	°	°	in.	
Aug.	20	20	29·450	53·3	52·1	71·5		Rain.
		23	29·409	51·6	50·8	51·3	0·46	Very heavy rain : thunder.
Aug.	21	2	29·372	55·3	53·7			Drizzling rain.
		5	29·347	53·3	52·1			Id.
Aug.	22	20	29·420	52·8	50·0	63·2		Fair.
		23	29·467	57·9	52·0	47·5	0·46	Id.
Aug.	23	2	29·525	58·6	51·7			Id.
		5	29·583	59·2	52·9			Id.
		20	29·817	49·4	48·1	60·4		Light rain.
		23	29·847	53·8	50·3	42·4	0·02	Cloudy.
Aug.	24	2	29·836	56·4	52·5			Fair but cloudy.
		5	29·838	57·8	53·7			Fair and clear.
		20	29·686	56·7	55·0	60·1		Fair : nimbi to W. : cumuli to E.
		23	29·662	62·5	59·0	50·1	0·17	Heavy cumuli approaching to nimbi.
Aug.	25	2	29·723	66·3	60·5			Dense scud : gleams of sunshine.
		5	29·737	65·0	60·9			Cumuli : scud.
		20	29·722	61·8	60·2	67·3		Light rain : scud : wind.
		23	29·740	65·8	62·8	55·6	0·00	Heavy cumuli.
Aug.	26	2	29·847	65·0	62·4			Heavy cumuli and scud.
		5	29·894	64·9	60·6			Cumuli : fair.
		20	29·916	59·6	57·0	67·2		Cumuli.
		23	29·910	61·8	59·3	56·8	0·01	Id.
Aug.	27	2	29·899	65·5	60·6			Id. : wind.
		5	29·836	63·7	58·9			Id. : id.
		20	29·845	58·2	56·8	……		Overcast : light rain : gleams of sunshine.
		23	29·861	62·1	57·3	……	0·00	Id. : heavy cum. : light wind.
Aug.	28	2	29·833	64·2	56·4			Fair : scattered cum. : light breeze.
		5	29·846	64·0	56·6			Id. : id. : occasional gusts of wind.
Aug.	31	20	29·663	43·6	42·6	55·8		Fair : cumuli on horizon : heavy dew.
		23	29·647	57·0	53·0	37·4	0·50	Id. : clouds rising : misty : solar halo at 22^h.
Sept.	1	2	29·625	59·3	54·6			Sky much overcast : dark cumuli : wind rising.
		5	29·586	56·9	51·5			Sky almost covered with dark clouds : wind high.
		20	29·464	54·3	50·7	59·6		Fair : cum.-str. on horizon : cir.-haze above.
		23	29·434	59·8	54·8	51·2	0·00	Id. : sky much overcast : cum.-str. on hor. : wind very high.
Sept.	2	2	29·386	61·6	55·6			Sky much overcast with heavy cum : wind high.
		5	29·384	60·3	54·7			Overcast : dark cum. : brighter to W. : wind very high.
		20	29·468	49·7	48·8	62·5		Overcast : cum. in zenith : cum.-str. on horizon.
		23	………	……	……	47·1	0·00	
Sept.	3	2	………	……	……			
		5	………	……	……			
		20	29·460	46·4	45·0	59·3		Sky quite overcast : heavy rain.
		23	29·456	45·9	43·8	45·4	0·13	Id. : id.
Sept.	4	2	29·490	45·1	43·8			Overcast : steady rain : clearing to NW.
		5	29·482	45·5	43·9			Clouds more broken up : gleams of sunshine.
Sept.	5	20	29·564	40·5	39·2	55·6		Fine : cum. generally : cum.-str. on E. hor : clear to NW.
		23	29·553	51·5	47·6	35·1	0·13	Overcast from N. to zen. : light rain : cum.-str. on N. hor. : broken to S. : gleams of sunshine.
Sept.	6	2	29·538	55·3	51·0			Generally overcast : clouds broken : cum. : clearing on N. hor.
		5	29·491	56·9	52·0			Clear to N. : detached and scattered cum. : cir.-cum.

Aug. 31^d. The maximum and minimum here given are supposed to be those of the 31^{st}. In cases of omission Mr. Russell does not mention when the register thermometers are set.

Göttingen Mean Time of Observation.	Barometer Corrected.	Thermometers. Dry.	Thermometers. Wet.	Thermometers. Max. and Min.	Rain Gauge B.	STATE OF THE SKY.
d. h.	in.	°	°	°	in.	
Sept. 6 20	29·480	40·2	39·4	57.3		Fine : cir., cir.-str. : cum. to SW. : clear to E. and N.
23	29·448	52·5	49·1	35·5	0·00	Much overcast : heavy cum. : bright gleams of sunshine.
Sept. 7 2	29·375	53·7	50·6			Sky quite overcast with heavy cumuli.
5	29·304	55·4	52·3			Still overcast : clouds more broken : cum., cum.-str. on hor.
20	29·307	49·8	49·0	55·9		Unbroken clouds : light rain.
23	29·355	53·2	52·0	48·3	0·34	Still overcast : clouds broken : light rain.
Sept. 8 2	29·413	54·9	52·9			Id. : id. : id.
5	29·522	51·6	49·8			Id. : clouds less broken : fair.
20	29·762	42·6	41·9	55·1		Thick fog.
23	29·720	52·2	50·8	36·9	0·02	Much overcast : cum. : gleams of sunshine.
Sept. 9 2	29·693	58·6	56·7			Quite overcast, with almost unbroken clouds : light rain.
5	29·650	58·8	57·2			Id. : id. : id.
20	29·623	58·7	56·8	61·1		Fair : sky covered with detached cum. : cum.-str. on hor.
23	29·621	61·8	59·7	51·6	0·01	Quite overcast with cum. : cum.-str. on SW. hor.
Sept. 10 2	29·592	63·5	62·3			Sky covered with unbroken clouds : rain.
5	29·588	61·4	60·3			Id. : id.
20	29·696	54·2	53·3	65·3		Fair : cum to S. : clear in zen. : cir.-str. to N. and E.
23	29·737	61·4	57·4	53·3	0·12	Id. : cum. generally : cir.-str.
Sept. 11 2	29·770	63·9	59·2			Id. : sky covered with broken clouds.
5	....	......	......			
Sept. 12 20	29·717	54·9	53·8	75·6		Fine : clear : cirri.
23	29·737	66·9	62·5	51·2	0·00	Id. : id. : id.
Sept. 13 2	29·744	72·0	67·8			Id. : id. : id.
5	29·722	70·9	63·8			Id. : id. : id.
Sept. 14 20	29·591	58·8	56·8	68·1		Fine and clear : a few cum. on hor. : cir. here and there.
23	29·588	64·2	58·5	55·3	0·09	Almost clear : a few cum. : strong breeze.
Sept. 15 2	29·674	67·5	60·5			Many cumuli : strong breeze.
5	29·556	65·1	60·3			Id. : wind abated.
20	29·543	55·7	53·7	69·0		Fine and clear : cir., cir.-cum.
23	29·534	62·2	57·8	52·7	0·03	Fair, cumuli, cirri.
Sept. 16 2	29·510	61·4	58·6			Id., cum. : storm passed off to NE. : dense clouds still seen there.
5	29·549	63·0	58·0			Id., id : occasional thunder in horizon.
20	29·707	46·8	45·9	65·3		Fog ; apparently clear above.
23	29·714	57·9	55·7	43·2	0·16	Fine and clear : a few cum. on hor.
Sept. 17 2	29·716	62·5	58·7			Fine : many cumuli.
5	29·705	63·3	59·6			Clear : cum.-str. on hor.
20	29·771	46·4	45·6	64·2		Thick fog.
23	29·780	51·1	49·6	42·4	0·00	Id.
Sept. 18 2	29·743	56·2	54·3			Sky overcast : misty.
5	29·749	55·7	54·2			Id.
20	....	......	......	57·1		Thick fog.
23	29·878	56·7	55·1	50·7	0·00	Fine : fog clearing off : cumuli.
Sept. 19 2	29·880	61·3	58·8			Id. : cumuli : cum.-str. on hor.
5	29·874	62·3	58·9			Id. : id. : cir.-cum.
20	29·999	56·4	55·8	63·7		Quite overcast.
23	30·031	58·3	55·8	54·6	0·00	Overcast : heavy dark clouds.
Sept. 20 2	30·030	58·6	56·3			Id. : id.
5	30·038	57·0	54·7			Id. : id. : wind rising.

Göttingen Mean Time of Observation.		Barometer Corrected.	Thermometers.			Rain Guage B.	State of the Sky.
			Dry.	Wet.	Max. and Min.		
d.	h.	in.	°	°	°	in.	
Sept. 20	20	30·021	48·4	47·6	58·9		Fine and generally clear : cumuli.
	32	30·006	54·2	50·6	45·8	0·00	Much overcast : heavy dark clouds.
Sept. 21	2	29·947	56·3	49·4			Fine : many cum. : wind rather high.
	5	29·897	54·7	46·1			Id. : cum. : cum.-str.
	20	29·688	51·3	49·0	58·1		Much overcast : cum. : wind.
	23	29·662	53·9	49·3	45·3	0·00	Id. : id. : id.
Sept. 22	2	29·598	54·0	49·5			Quite overcast : id.
	5	29·530	52·9	49·8			Id : less wind.
	20	29·396	51·7	50·4	......		Overcast.
	23	29·390	55·0	53·6	......	0·11	Id.
Sept. 23	2	29·359	56·7	55·7			Id. : light rain : cum. : scud.
	5	29·370	58·3	56·0			Clearer sky : cum. : cir.
	20	....	......	......			
	23	29·327	56·3	54·7	59·2	0·05	Quite overcast : light rain.
Sept. 24	2	29·337	53·6	52·5	49·3		Unbroken clouds : heavy rain.
	5	29·329	54·4	52·8			Id. : light rain.
	20	29·216	51·7	51·0	56·6		Overcast : rain.
	23	29·160	53·1	51·0	49·8	0·74	Id. : id.
Sept. 25	2	29·099	55·5	53·5			Clouds more broken : cum. : scud.
	5	29·139	54·4	52·3			Id. : id.
Sept. 26	20	29·296	44·6	44·0	60·1		Fog.
	23	29·307	48·2	47·0	41·0	0·07	Id.
Sept. 27	2	29·286	52·1	50·1			Still foggy : sun breaking through.
	5	29·287	55·8	54·7			Fine and clear : cirri.
	20	28·880	52·7	52·1	56·3		Heavy clouds to S. (windward) : cir. : cir.-cum. to N. : cir.-str. [from NE.
	23	28·886	59·5	56·8	47·3	0·07	Scattered cum. : strong breeze : sunshine.
Sept. 28	2	28·843	61·6	57·4			Cum. : varieties of cir. : cir.-cum. : cir.-str. : sunshine : wind.
	5	28·866	57·1	54·3			Much overcast : clouds broken to W. : gleams of sunshine.
	20	28·484	52·5	51·7	63·2		Quite overcast : heavy rain : high wind.
	23	28·607	53·0	50·3	50·3	0·73	Clearer to S. : cum. : nimb. to N. : sunshine : wind.
Sept. 29	2	28·646	56·3	53·4			Overcast : rain and wind.
	5	28·693	56·8	53·0			Sky more open : heavy clouds to S. : wind.
	20	28·883	52·4	50·8	56·6		Overcast : light rain.
	23	28·857	55·6	53·2	51·0	0·06	More open : scattered cum. : sunshine.
Sept. 30	2	28·886	58·3	52·8			Id., but wild : scattered cum. : cum.-str. on hor. : wind.
	5	28·930	56·1	51·1			As before : heavy clouds to W.
Oct. 6	20	28·736	49·2	47·9	51·3		Heavy rain : wind.
	23	28·733	50·3	49·4	47·3	2·58	Id. : id.
Oct. 7	2	28·669	51·9	50·9			Id. : id.
	5	28·752	51·7	50·9			Overcast : fair : wind not so high.
	20	29·033	49·5	48·8	52·7		Rather open to N. : cir.-cum. : dense clouds to S.
	23	29·083	50·3	49·4	47·3	0·47	Overcast : wind : rain.
Oct. 8	2	29·129	50·9	49·4			Heavy clouds to S. : a little broken to N. : gleams of sunshine.
	5	29·206	50·6	48·5			Quite overcast.
	20	29·408	46·2	45·5	51·9		Overcast : cum.-str. on hor. : calm.
	23	29·432	51·2	48·9	43·1	0·02	Thick scud in zen. : clear elsewhere : cum.-str. on hor.
Oct. 9	2	29·454	54·0	50·3			Cloudy : cumuli.
	5	29·458	53·0	51·8			Id. : id.

Oct. 6ᵈ. The maximum and minimum are supposed to be those of the preceding 24 hours. See note on the quantity of rain, page 68.

Göttingen Mean Time of Observation.	Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Oct. 10 20	29·111	47·1	43·8	54·9		Clear : cir. : dark heavy clouds on NE. hor.
23	29·148	50·1	45·5	41·7	0·07	Clear : a few cumuli : wind.
Oct. 11 2	29·150	53·1	47·5			Fair : cumuli : cir.-cum.
5	29·050	50·9	48·8			Overcast.
20	29·026	37·1	36·9	53·5		Fair : cirri : cum. on E. horizon.
23	29·032	44·4	43·0	35·3	0·05	Id. : overcast.
Oct. 12 2	29·070	51·0	48·8			A good deal overcast : sun between broken clouds.
5	29·131	51·9	48·5			Cumuli : heavy dark clouds to W.
20	29·511	42·0	38·9	53·5		Cumuli : dark clouds to SE.
23	29·639	43·2	39·8	36·1	0·00	Clear to W. : cum to E. : calm.
Oct. 13 2	29·633	45·8	41·7			Overcast : cir.-str. : cumuli on hor.
5	29·638	44·8	41·8			Overcast : rain.
20	29·293	50·0	48·8	55·9		Overcast : dark clouds to eastward.
23	29·295	55·0	51·0	42·4	0·16	Clear in zenith : cum. to W. : heavy clouds to E.
Oct. 14 2	29·282	52.9	50·1			Sunshine : cloudy to eastward.
5	29·261	53·0	49·9			Overcast : rain : heavy clouds to W.
20	29·053	48·0	47·1	55·3		Overcast : rain.
23	29·197	46·0	44·3	39·4	0·26	Id.
Oct. 15 2	29·321	44·8	42·4			Id. : rain : wind NW.
5	29·397	43·4	41·8			Id. : breaking to westward.
20	29·173	41·0	40·0	49·0		Id. : rain.
23	29·068	41·2	39·9	39·2	0·21	Id. : id.
Oct. 16 2	29·010	42·8	41·7			Id. : id.
5	29·120	43·2	41·7			Id. : id.
Oct. 17 20	29·281	40·2	37·5	53·5		Fair and clear : cir. : cum. on hor.
23	29·435	40·9	38·2	37·7	0·20	Id. : cir.-str.
Oct. 18 2	29·510	44·2	38·3			Zenith clear : cum. on horizon.
5	29·499	42·7	38·7			Id. : cir.-str.
20	29·457	32·7	32·2	53·5		Fine and clear : frost.
23	29·444	43·5	40·9	30·8	0·00	Fair : cirri : cir.-str.
Oct. 19 2	29·405	47·6	44·5			Nimbus : shower of rain : cirri.
5	29·441	46·6	43·7			Heavy clouds, sun between.
20	29·300	45·2	42·7	53·1		Overcast : broken to eastward.
23	29·225	48·6	45·4	42·3	0·00	Heavy cumuli : sunshine : wind.
Oct. 20 2	29·135	48·1	45·2			Overcast.
5	29·027	45·6	43·7			Id.
20	29·456	33·7	31·1	49·5		Fair : cumuli.
23	29·561	37·2	34·0	32·0	0·20	Id. : clear.
Oct. 21 2	29·628	41·0	37·0			Id. : id.
5	29·682	39·6	36·8			Id. : cir. and cir.-str.
20	....	......	......	42·0		
23	29·791	37·2	35·8	30·0	0·00	Overcast : cum.-str. on E. hor.
Oct. 22 2	29·712	44·8	41·8			Id. : id. : id.
5	29·632	43·9	42·4			Id.
20	29·195	42·3	41·5	45·5		Overcast : cum. : cir.-str. on hor.
23	29·083	44·9	43·3	40·2	0·06	Id. : light rain : strong breeze.
Oct. 23 2	28·963	45·8	44·0			Id. : id. : id.
5	28·820	45·4	44·5			More open : scattered heavy clouds : zenith clear.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
				Dry	Wet	Max. and Min.		
	d	h.	in.	°	°	°	in.	
Oct.	24	20	28·913	42·3	40·4	48·5		Much overcast : cum. : cir.-cum.
		23	28·989	43·6	40·8	36·6	0·25	Id. : broken clouds : brisk gale.
Oct.	25	2	28·977	45·3	42·1			Id. : id : id. : wild sky.
		5	29·118	41·5	39·5			Storm of wind and rain.
		20	29·353	37·5	35·8	45·5		Clear : cirri : dark cumuli on horizon.
		23	29·362	41·5	40·0	36·6	0·01	Rather open sky : cum. : cirri.
Oct.	26	2	29·440	44·5	41·3			Broken heavy cum. : scud : a few drops of rain.
		5	29·505	41·5	39·0			Clear above : cumuli on horizon.
		20	29·677	38·6	37·5	45·0		Overcast : clouds broken to E. : rain : wind.
		23	29·654	43·1	39·5	36·5	0·20	Id. : wind.
Oct.	27	2	29·593	42·6	39·5			Cum. : frequent showers : three rainbows seen during one hour : [high wind.
		5	29·605	41·8	38·8			High wind : rain.
		20	29·747	40·5	39·0	44·6		Fair : detached cumuli.
		23	29·790	44·5	40·5	39·2	0·01	Overcast : gleams of sunshine.
Oct.	28	2	29·697	46·8	42·2			Zenith clear : ranges of cum. on hor.
		5	29·831	43·8	41·7			Cir.-str. to S. : linear cirri : cum. to N.
		20	29·938	37·8	36·9	46·8		Fair : overcast : cumuli.
		23	29·936	44·3	41·8	31·0	0·00	Cumuli : sunshine.
Oct.	29	2	29·947	46·9	43·5			A good deal overcast : cir.-str. on E. horizon.
		5	29·956	44·5	41·4			Overcast : cumuli.
		20	29·984	42·9	39·8	42·2		Fair : overcast : cumuli.
		23	29·965	44·9	40·5	46·5	0·00	Overcast : wind.
Oct.	30	2	29·903	44·9	41·0			Id. : id.
		5	29·889	43·5	42·3			Id. : rain.
Oct.	31	20	29·710	41·6	40·9	48·5		Overcast : light rain.
		23	29·756	44·9	43·7	40·0	0·12	Id. : id. : clearing to N.
Nov.	1	2	29·796	45·9	44·7			Id. : id.
		5	29·817	45·9	43·8			Id. : breaking to westward.
		20	30·040	30·0	......	46·9		Fine and clear.
		23	30·062	34·9	32·0	29·0	0·03	Id. :
Nov.	2	2	30·024	42·3	40·8			Id. :
		5	30·040	41·5	41·2			Fine : cirri : cir.-cum.
		20	30·094	35·8	35·4	44·5		Fair : cir.-cum. : cum. to eastward.
		23	30·136	40·3	39·4	33·9	0·00	Overcast : cir.-str. on E. horizon.
Nov.	3	2	30·134	44·5	43·4			Id. : id.
		5	30·133	43·8	43·5			Hazy to E. : clear with cirri to W.
		20	30·239	31·9	31·8	46·0		Foggy : clouds where seen, cumuli.
		23	30·246	32·5	32·4	30·8	0·00	Fog clearing off : zenith clear.
Nov.	4	2	30·210	39·0	38·3			Fair : clear : cirri.
		5	30·197	40·0	39·6			Clear.
		20	30·174	33·3	33·1	41·1		Overcast.
		23	30·149	36·4	35·7	29·8	0·00	Id.
Nov.	5	2	30·138	40·7	39·7			Id.
		5	30·118	42·7	41·9			Id.
Nov.	7	20	29·907	48·5	46·6	52·5		Fine and clear : cumuli on S. horizon.
		23	29·938	50·8	48·5	35·6	0·01	Overcast : many cumuli.
Nov.	8	2	29·954	52·8	49·9			Id. : dark heavy cumuli.
		5	29·964	49·3	47·3			Id.

Göttingen Mean Time of Observation.	Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Nov. 8 20	29·840	48·5	46·9	53·7		Overcast : cum. : wind : scud flying low.
23	29·746	49·4	47·6	47·3	0·00	Id. : wind.
Nov. 9 2	29·796	48·9	46·9			Id. : id.
5	29·692	48·9	46·6			Id. : id.
20	29·620	48·8	45·9	52·5		Many cum. : a few cir.-str. to E. : wind.
23	29·617	51·8	47·4	48·3	0·00	Id. : id.
Nov. 10 2	29·650	51·9	47·4			Rain : nimbi : clear to NW.
5	29·635	48·1	44·8			Overcast : cumuli.
20	29·650	40·5	37·8	51·6		Fair and clear : cum. on S. hor.
23	29·676	41·5	38·2	38·9	0·00	Id. : cir.-cum.
Nov. 11 2	29·644	44·5	39·5			Id. : id. : cum.
5	29·709	40·8	38·9			More overcast : cumuli.
20	29·305	37·5	36·5	44·9		Overcast : cum. : cum.-str.
23	29·186	39·4	38·5	32·2	0·19	Id. : light rain, but clearing.
Nov. 12 2	29·092	40·6	39·5			Id. : id., clearing to W.
5	29·020	37·6	35·9			Id. : clearer to W.
20	29·088	32·5	31·9	41·2		Overcast : cumuli.
23	29·104	36·3	35·1	27·2	0·03	Id. : id : clearer to S.
Nov. 13 2	29.042	37·0	36·2			Id. : rain.
5	29·093	34·5	33·9			Id. : snow.
Nov. 14 20	29·308	24·5	......	39·1		Overcast : a few cir.-str. : breaking to SE.
23	29·275	27·7	......	23·0	0·33	Hazy : cir.-str. : cumuli to E.
Nov. 15 2	29·261	30·4	......			Fair : a few cir.-str. : cum. to E.
5	29·247	27·4	......			Id. : clear.
20	29·282	23·9	......	30·9		Clear : cum. to S.
23	....	31·3	30·6?	21·9	0·06	Id. : id.
Nov. 16 2	29·303	34·4	31·6			Fine : cirri : cum. on hor.
5	29·325	29·4	29·3?			Clear.
20	29·443	21·5	21·5	34·8		Clear : cirri : cum. to E.
23	29·397	24·7	23·9	19·9	0·00	Id.
Nov. 17 2	29·430	30·9	29·9			Id.
5	29·388	27·5	27·3			Id.
20	29·261	17·7	17·5	32·3		Rather overcast : cumuli.
23	29·255	23·1	22·5	14·6	0·00	Overcast.
Nov. 18 2	29·293	28·9	28·1			Id.
5	29·314	28·7	28·3			Id. : breaking to E.
20	29·281	30·4	30·2	30·4		Overcast.
23	29·231	35·4	32·6	21·9	0·00	Cloudy : cumuli : open to S.
Nov. 19 2	....	......	......			
5	29·124	32·3	31·3			Clear : cirri.
20	29·078	22·5	22·5	36·2		Clear.
23	29·036	26·7	26·5	21·9	0·00	Hazy : cum. : a few cir.-str.
Nov. 20 2	28·929	32·3	31·3			Overcast.
5	28·834	36·3	34·1			Id. : light rain.
Nov. 21 20	28·670	38·3	37·9	38·6		Overcast : rain.
23	28·737	37·7	36·8	35·6	0·92	Id. : clearing on N. hor.
Nov. 22 2	28·766	39·5	38·6			Id.
5	28·829	38·6	37·6			Id.

Göttingen Mean Time of Observation.		BAROMETER. Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
			Dry.	Wet.	Max. and Min.		
d.	h.	in.	°	°	°	in.	
Nov. 22	20	29·101	35·9	34·5	39·6		Fair : clear to E. : cum.
	23	29·151	38·6	37·2	34·1	0·00	Many cumuli : wind.
Nov. 23	2	29·198	39·9	37·9			Wild sky : cumuli : cirri.
	5	29·248	38·8	36·7			Cloudy : cumuli.
	20	29·381	37·0	35·9	41·6		Cloudy : cumuli.
	23	29·445	39·6	37·6	35·6	0·00	Overcast : cumuli : scud.
Nov. 24	2	29·396	41·8	38·9			Id. : id. : clear horizon.
	5	29·461	37·8	36·1			Lowering dark cumuli.
	20	29·549	29·0	……	42·6		Clear.
	23	29·603	33·1	31·6?	27·5	0·00	Id.
Nov. 25	2	29·609	39·3	36·8			Id.
	5	29·640	35·5	34·5			Id. : a few cumuli.
	20	29·677	29·4	……	39·8		Overcast.
	23	29·672	31·9	31·5	27·0	0·00	Fair : cumuli.
Nov. 26	2	29·635	35·2	32·2			Id. : cirri : black cum. on N. horizon.
	5	29·627	30·4	30·5			Clear.
	20	29·500	34·1	33·0			Overcast.
	23	29·494	35·5	33·7		0·04	Id.
Nov. 27	2	29·476	36·8	34·8			Id.
	5	29·455	36·7	35·3			Id.
Nov. 28	20	28·685	41·7	41·5	45·5		Overcast : rain.
	23	28·657	45·5	44·5	28·0	0·42	Id. : id.
Nov. 29	2	28·591	45·5	44·2			Clear : cir.-cum. : cum.
	5	28·564	46·0	45·0			Overcast.
	20	28·262	42·1	41·6	46·4		Overcast : rain.
	23	………	……	……	40·0	0·29	
Nov. 30	2	28·420	44·2	43·2			Overcast.
	5	28·524	44·6	43·4			Id.
1842.							
Jan. 12	20	29·542	31·4	30·1	31·9		Overcast : wind.
	23	29·558	33·2	31·9	25·0	1·58	Id. : id.
Jan. 13	2	29·498	33·4	31·6			Id. : id.
	5	29·491	32·7	31·6			Id. : id.
	20	29·446	30·4	29·8	33·8		Light snow.
	23	29·416	31·3	30·7	30·0	0·00	Id.
Jan. 14	2	29·415	34·0	33·0			Id.
	5	29·339	33·7	33·1			Overcast.
	20	29·706	32·9	31·8	35·4		Overcast.
	23	29·748	35·1	33·6	30·0	0·15	Id.
Jan. 15	2	29·724	35·8	33·9			Id. : clear to W.
	5	29·700	34·5	33·2			Fine and clear.
Jan. 16	20	29·754	34·3	32·3	36·5		Clear : cumuli on E. horizon.
	23	29·860	33·3	31·1	30·6	0·20	Id.
Jan. 17	2	29·893	35·5	33·6			Id.
	5	29·966	34·2	32·4			Id.

Jan. 12ᵈ 23ʰ. The rain registered is the quantity which has fallen since Nov. 30.

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	SATE OF THE SKY.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Jan. 17 20	30·102	28·4	27·8	38·1		Cloudy : cumuli.
23	30·123	33·2	32·7	19·9	0·00	Scattered cumuli.
Jan. 18 2	30·122	37·5	36·2			Id.
5	30·136	36·5	35·7			Overcast.
20	30·125	37·5	36·8	38·9		Overcast : breaking to E.
23	30·133	38·0	37·2	33·1	0·01	Id. : scud : light rain.
Jan. 19 2	30·046	42·0	40·4			Id. : gleams of sunshine.
5	30·035	41·1	40·3			Id.
20	29·907	37·3	35·6	43·6		Clear : light clouds : cir.-str.
23	29·903	37·5	36·0	36·1	0·00	Clear : calm.
Jan. 20 2	29·868	41·1	38·7			Fine and clear : cir.-cum.
5	29·842	38·2	36·4			Clear.
Jan. 21 20	29·396	30·9	......	32·4		Fair.
23	29·359	31·2	......	23·5	0·00	Id. : cumuli.
Jan. 22 2	29·217	32·2	......			Overcast : snow.
5	29·156	32·9	......			Id. : id.
Jan. 23 20	....	......	......	33·9		
23	29·570	23·4	23·4	18·4	0·20	
Jan. 24 2	29·493	30·9	29·1			
5	29·399	30·3	28·5			
20	29·052	33·6	33·5	35·0		Overcast.
23	29·171	34·6	33·5	22·2	0·02	Scattered cumuli : fair.
Jan. 25 2	29·279	36·9	34·5			Clear.
5	29·352	32·0	30·9			Id. : clouds to W.
20	29·042	35·4	33·5	37·5		Overcast : high wind.
23	28·757	33·9	33·3	25·2	0·00	Id. : blowing a gale : sleet.
Jan. 26 2	28·554	36·5	34·5			Clouds broken : gale.
5	28·509	35·3	34·5			Overcast : wind abated a little : rain.
20	29·105	36·5	33·5	38·0		Overcast : wind.
23	29 238	37·3	34·2	29·5	0·15	Clear.
Jan. 27 2	29·294	38·6	35·2			Id. : cirri.
5	29·331	37·2	34·5			Id.
20	29·467	34·6	33·0	39·1		Fair : hazy.
23	29·529	36·8	34·5	31·8	0·00	Cirrous haze.
Jan. 28 2	29·546	38·0	35·6			Clear : a few cirri.
5	29·577	36·6	34·3			Id.
20	29·727	36·5	34·4	38·6		Overcast : cumuli.
23	29·825	37·1	34·5	31·0	0·00	Cloudy : cumuli : clearing to N.
Jan. 29 2	29·888	38·4	35·3			Clear.
5	29·925	35·2	33·0			Id.
Jan. 30 20	29·729	35·6	35·4	39·1		Overcast : rain.
23	29·716	36·6	36·4	23·7	0·20	Id. : light rain.
Jan. 31 2	29·692	39 1	38·8			Id. : id.
5	29·666	38·1	37·6			Id. : foggy.
20	29·801	35·5	33·7	40·1		Clear.
23	29·858	38·6	35·9	32·0	0·01	Id. : a little haze.
Feb. 1 2	29·843	40·7	38·2			Cloudy : cumuli.
5	29·816	39·1	37·4			Id. : id.

Jan. 21^{d}, 22^{d}. The external thermometer case was being altered and painted, preventing the thermometers from being properly observed.

Göttingen Mean Time of Observation.		Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
			Dry.	Wet.	Max. and Min.		
d.	h.	in.	°	°	°	in.	
Feb. 1	20	29·677	43·4	41·3	44·3		Overcast : cum. : clear on N. hor.
	23	29·774	43·6	40·5	34·0	0·00	Fair : scattered cum. : wild sky.
Feb. 2	2	29·838	43·9	40·2			Clear : cir.-cum.
	5	29·903	41·0	37·5			Cir.-cum. : hazy on hor.
	20	30·084	36·3	34·7	44·6		Cir.-cum. : cir.-str. on hor.
	23	30·119	38·8	36·5	33·0	0·00	Id. : cum.
Feb. 3	2	30·132	41·9	38·9			Clear : a few cirri.
	5	30·134	40·5	38·3			Id. : id.
	20	30·152	38·1	36·8	42·1		Overcast.
	23	30·157	40·0	39·2	32·5	0·00	Id.
Feb. 4	2	30·134	42·6	41·4			Clouds more broken : heavy cum. and scud.
	5	30·128	42·8	40·5			Scattered cumuli.
	20	30·109	30·7	30·6	44·8		Fine morning : foggy.
	23	30·092	33·2	31·8	27·8	0·00	Id. : id.
Feb. 5	2	30·044	40·5	37·5			Clear.
	5	30·006	38·6	36·4			Id.
Feb. 6	20	29·674	29·2	29·1	44·8		Overcast : breaking to E.
	23	29·668	28·5	28·5	22·1	0·00	Cir.-cum.
Feb. 7	2	29·628	32·4	30·8			Clear : a few cumuli.
	5	29·609	33·4	31·6			A good deal overcast : cumuli.
	20	29·636	32·7	32·5	37·2		Overcast.
	23	29·648	35·9	33·4	28·0	0·00	Id. : cum. : clear to W.
Feb. 8	2	29·627	39·6	36·8			Clear.
	5	29·633	37·5	35·5			Fair : cumuli over $\frac{7}{8}$ of the sky.
	20	29·534	32·7	32·4	39·3		Overcast : clouds rather broken : cum.
	23	29·512	34·8	34·4	29·2	0·00	Id. : breaking to E.
Feb. 9	2	29·458	37·8	36·8			Id. : light rain.
	5	29·417	39·5	38·5			Id. : id.
	20	29·444	42·5	41·5	42·6		Overcast : light rain.
	23	29·522	43·5	42·2	34·1	0·05	Id. : id. : wind.
Feb. 10	2	29·541	45·9	43·8			Heavy clouds : wind : patches of sky.
	5	29·541	44·5	42·6			Id. : id. : id.
	20	29·266	47·6	46·3	47·5		Overcast : rain : wind.
	23	29·341	48·6	47·0	40·7	0·05	Id. : wind.
Feb. 11	2	29·341	49·0	47·3			Id. : id.
	5	29·422	45·6	43·6			Clear : wind.
	20	29·465	49·0	48·3	50·0		Overcast : rain.
	23	29·384	45·7	44·6	38·2	0·30	Id. : id. : high wind.
Feb. 12	2	29·317	47·1	45·6			Id. : id. : id.
	5	29·314	47·1	44·1			Zenith clear : cir.-cum. : dense clouds all round the hor.
Feb. 13	20	29·941	34·5	33·5	37·4		Fine morning : cir.-cum. : cir.
	23	30·058	37·3	32·6	33·1	0·23	Id. : id.
Feb. 14	2	30·022	42·0	40·0			Overcast : wind.
	5	30·024	43·8	42·0			Id.
	20	29·911	44·5	42·3	45·0		Overcast : drops of rain : wind.
	23	29·901	45·2	43·7	37·1	0·00	Id. : light rain : wind.
Feb. 15	2	29·960	48·6	44·6			Zenith clear : cir.-cum. : heavy cum. on hor. : wind.
	5	30·044	43·3	39·3			Clear.

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Feb. 15 20	30·203	34·5	33·6	49·2		Dense cum on hor. : cir.-cum. : cir.-str.
23	30·203	39·9	37·8	33·8	0·00	Clear : cir.-cum.
Feb. 16 2	30·168	46·6	42·5			Cum. : cir.-cum.
5	30·141	43·5	40·7			Clear : cirri.
20	30·024	41·4	38·8	48·0		Overcast : cum. : clearing to S.
23	30·030	42·6	39·7	37·6	0·00	Id. : id. : cum.-str. : broken to S.
Feb. 17 2	30·001	45·4	42·7			Id. : cum.-str. : wind.
5	29·979	44·3	41·1			Id. : id. : id.
20	30·016	41·3	38·8	47·3		Overcast : cum. : cir.-str.
23	30·046	42·5	39·7	36·1	0·00	Id. : cum.-str. : dense cum. to S.
Feb. 18 2	30·034	46·0	41·9			Clear : a few scattered cumuli.
5	30·058	43·7	40·7			Clear from zenith to S. : dense clouds on N. hor.
20	30·017	42·5	40·7	46·5		Overcast : dark cumuli.
23	29·990	44·7	41·5	39·7	0·00	Detached cum. over ½ of the sky.
Feb. 19 2	29·914	45·0	41·2			Much overcast : heavy dark cum. : wind.
5	29·865	43·2	39·7			Clear.
Feb. 20 20	29·340	36·5	35·8	46·3		Overcast : rain.
23	29·361	37·8	36·4	36·1	0·09	Id.
Feb. 21 2	29·385	41·7	37·8			Zenith clear : cum. on hor.
5	………	……	……			
20	29·449	34·0	33·4	41·7		Overcast : cumuli.
23	29·431	37·0	34·8	29·9	0·01	Id. : id.
Feb. 22 2	29·357	41·5	36·5			Clear : cirri : wind.
5	29·293	40·5	35·7			Id.
20	29·124	38·6	37·0	43·1		Zenith clear : cumuli on hor.
23	29·088	43·0	39·5	31·5	0·00	Clear : cir.-cum.
Feb. 23 2	28·991	45·7	40·6			Clear from zenith to S. : cum to N.
5	28·941	40·0	38·4			Overcast : light rain.
20	28·885	29·9	29·5	45·8		Dark cum. to E. : cir.-str. on W. hor. : mottled cum. and cirri.
23	28·879	35·8	34·1	28·5	0·02	Hazy : cir.-cum.
Feb. 24 2	28·854	41·8	37·5			Clear.
5	28·863	41·5	38·8			Overcast.
20	28·971	34·6	33·1	43·8		Overcast.
23	28·970	38·6	37·0	32·8	0·00	Id.
Feb. 25 2	28·956	40·5	39·0			Id.
5	28·939	39·8	38·5			A good deal overcast : cumuli.
20	28·856	34·7	32·8	42·1		Snow.
23	28·894	34·5	33·8	32·2	0·01	Clearing : wind.
Feb. 26 2	28·958	39·4	35·8			Much overcast : cumuli.
5	28·998	39·5	34·7			Clear : a few cumuli.
Feb. 27 20	28·824	37·7	35·0	……		Overcast : high wind : drops of rain.
23	28·935	41·8	36·5	……	0·07	Clear : high wind : a few wisps of cloud.
Feb. 28 2	29·043	43·5	38·0			Open sky : a few cumuli.
5	………	……	……			
Mar. 1 20	………	……	……	……		
23	………	……	……	34·1	0·15	
Mar. 2 2	29·076	37·9	37·1			Overcast : light rain.
5	29·107	37·0	36·3			Id. : id.

Feb. 27^{d} 23^{h}. Register thermometers omitted to be set on the 26th.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
				Dry.	Wet.	Max. and Min.		
	d.	h.	in.	°	°	°	in.	
Mar.	2	20	29·467	36·3	36·0	39·1		Overcast : rain.
		23	29·484	38·8	38·4	34·4	0·39	Id. : id.
Mar.	3	2	29·418	40·1	39·7			Id. : id.
		5	29·299	42·1	41·7			Id. : id.
		20	29·495	37·0	35·0	42·1		Rather open sky : cum. and scud.
		23	29·518	41·3	37·6	34·9	0·54	Open sky : a few cumuli.
Mar.	4	2	29·523	43·0	38·5			Much overcast, with cumuli.
		5	29·506	43·7	38·6			Open sky : cum. on hor.
		20	29·612	38·0	36·5	44·8		Zenith clear : cir.-cum. : cum. on hor.
		23	29·658	43·5	41·3	34·5	0·00	Much overcast : cumuli.
Mar.	5	2	29·675	46·9	44·2			Id. : id.
		5	29·679	45·9	44·1			Overcast : wind.
Mar.	6	20	29·354	39·0	37·0	50·5		Much overcast.
		23	29·284	44·8	41·5	36·1	0·00	Id. : a few gleams of sunshine : wind.
Mar.	7	2	29·189	47·4	44·3			Id. : patches of sky : high wind.
		5	29·080	47·1	45·2			Overcast : wind and rain.
		20	29·014	37·5	36·0	50·1		Overcast : rain.
		23	29·035	42·5	39·5	37·1	0·07	Fair : many cumuli.
Mar.	8	2	29·081	44·6	40·0			Zenith clear : cum. on hor. : dense black clouds to NW.
		5	29·077	......	......			Storm of rain to NE. : dense nimbi to S. : open sky to W. : cum.
		20	29·121	32·9	32·1	46·4		Fine and clear.
		23	29·116	36·8	35·7	30·0	0·01	Rather open sky : cirri seen above the cum.
Mar.	9	2	29·094	36·5	34·1			Clear with cirri from zenith to W. : storm of rain passing off to eastward.
		5	29·091	40·9	37·0			Heavy cum. to N. : clear to S.
		20	29·166	35·4	32·8	41·8		Open sky : a few cirri from zenith to W. hor. : cum. on E. hor.
		23	29·260	37·2	33·2	31·0	0·01	Clear with cirri : cum. low on hor.
Mar.	10	2	29·366	40·4	36·5			Id. : id.
		5	29·485	40·2	36·0			Clear : a few cum. and cir.-str.
		20	29·539	38·2	36·5	46·5		Overcast : cir.-str. on NE. hor.
		23	29·428	42·7	41·0	33·1	0·00	Id. : drops of rain.
Mar.	11	2	29·219	48·8	46·8			Id. : light rain : wind.
		5	29·206	43·7	40·8			Id. : high wind : clear from zenith to westward.
		20	29·626	39·8	37·5	52·3		Sky covered with cir.-cum. and cir.-str.
		23	29·668	44·5	40·5	36·4	0·02	Overcast : a few cir.-str. on hor. : cir.-cum. : clearing to S.
Mar.	12	2	29·669	47·4	43·0			Overcast : haze.
		5	29·584	44·0	40·0			Id. : cumuli.
Mar.	13	20	29·861	41·5	40·0	48·9		Overcast.
		23	29·867	45·8	43·5	33·5	0·01	Id. : clearing a little to S.
Mar.	14	2	29·874	48·3	46·4			Id. : strong breeze.
		5	29·879	48·9	47·4			Id. : quite calm.
		20	29·950	48·6	47·5	51·9		Overcast : cir.-str. on hor. : clearing in zenith.
		23	29·974	50·9	48·5	45·3	0·00	Id. : a few breaks : cir.-cum. : strong breeze.
Mar.	15	2	29·946	51·9	49·5			Clearing a little : gleams of sunshine.
		5	29·957	50·1	48·1			Overcast : cumuli.
		20	29·982	46·6	45·7	53·5		Overcast.
		23	29·973	48·6	47·1	46·1	0·00	Id. : quite calm.
Mar.	16	2	29·928	50·1	48·1			Id. : cumuli.
		5	29·868	49·1	47·1			Id.

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
		Dry.	Wet.	Max. and Min.		
d. h.	in.	°	°	°	in.	
Mar. 16 20	29·788	40·5	38·5	52·3		Open sky : cum.
23	29·761	44·2	41·5	36·4	0·06	Id. : id. : cir. : strong breeze.
Mar. 17 2	29·672	46·4	43·0			Overcast : cumuli.
5	29·511	45·3	42·5			Id. : dark cumuli : wind.
20	29·160	40·7	38·5	47·5		Open sky from zen. to E. : dense black clouds from zen. to W. : [bright sunshine.
23	29·178	44·0	39·7	37·2	0·07	Cloudy : cumuli : strong breeze.
Mar. 18 2	29·137	44·5	39·8			Id. : id.
5	29·101	41·7	38·5			Rather open : cumuli.
20	29·012	35·5	33·8	45·5		Overcast : gusts of wind.
23	28·975	39·1	36·4	33·6	0·00	Much overcast : opening to westward : wind.
Mar. 19 2	28·951	42·8	40·0			Many cumuli : cum.-str. on E. hor.
5	28·898	44·8	41·0			Id.
Mar. 20 20	29·884	36·4	33·8	46·0		Overcast : cumuli : opening to W.
23	29·956	39·8	36·5	30·3	0·20	Open sky : cum. : cir.-str.
Mar. 21 2	30·023	40·5	36·7			Overcast : cumuli : high wind.
5	30·070	39·2	34·6			Id. : id. : id.
20	29·922	35·5	33·9	41·6		Overcast : calm.
23	29·863	36·0	35·5	29·3	0·11	Id.
Mar. 22 2	29·864	40·5	38·6			Id. : wind.
5	29·909	40·2	36·0			Clear : high wind : cumuli.
20	30·097	34·3	32·6	41·8		Zenith clear : cirrous haze. : dark cum. on E. hor.
23	30·113	36·7	33·6	34·0	0·07	Clear.
Mar. 23 2	30·104	40·7	35·8			Much overcast : a few openings : cum.-str.
5	30·072	41·5	36·5			Open sky.
20	30·017	44·7	42·8	42·1		Cloudy : partial blue sky.
23	30·017	50·1	46·1	34·0	0·00	Overcast : cum. : cir.-str.
Mar. 24 2	30·004	53·7	49·5			Much overcast : gleams of sunshine : cum. : cum.-str. to N. : [patches of sky.
5	29·957	54·4	48·8			Cloudy : clearing in zenith.
20	29·719	41·5	39·5	55·9		Much overcast : strong breeze : clear in zenith.
23	29·623	47·6	42·5	31·0	0·00	Id. : cumuli.
Mar. 25 2	29·482	49·6	45·6			Id. : id.
5	29·269	43·4	42·7			Overcast : rain : wind.
20	29·059	37·5	34·5	50·6		Open sky : cirro-cumuli.
23	29·108	41·0	35·5	33·0	0·08	Much overcast : high wind. : cum.
Mar. 26 2	29·145	42·0	36·5			Id. : id.
5	29·181	41·0	35·5			Id. : id. : drops of hail.
Mar. 27 20	29·228	44·9	44·3	50·1		Quite overcast : light rain.
23	29·233	50·5	48·8	31·0	0·07	Open to E. : a few cum. : overcast from zenith to W.
Mar. 28 2	29·217	51·7	49·1			Overcast chiefly with dark cum. : about $\frac{1}{16}$ of sky to E.
5	29·160	51·0	49·4			Almost clear : a few cum. : wind.
20	29·459	42·4	39·0	52·9		Clear.
23	29·499	45·4	41·4	37·1	0·00	Much overcast : cumuli : wind.
Mar. 29 2	29·534	48·1	42·5			Id. : id. : id.
5	29·542	46·4	41·7			Open sky : cumuli.
20	29·400	41·3	39·0	49·3		Overcast : light rain.
23	29·350	44·8	43·5	37·6	0·04	Id. : id.
Mar. 30 2	29·331	47·1	45·0			Id. : rain : wind.
5	29·339	49·3	44·6			Clear : a few cumuli : wind.

Göttingen Mean Time of Observation.		BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	STATE OF THE SKY.
			Dry.	Wet.	Max. and Min.		
d.	h.	in.	°	°	°	in.	
Mar. 30	20	29·126	42·5	41·5	54·8 ?		Overcast : light rain.
	23	29.034	50·6	48·5	37·2	0·02	Id. : wind and rain.
Mar. 31	2	29·046	47·9	42·7			Open sky : cirri : high wind.
	5	29·109	46·1	41·2			Clear : cirri.
	20	29·002	38·1	36·5	48·5		Overcast to SW. : clear to NE.
	23	29·027	43·7	39·7	32·7	0·01	Open sky : cumuli.
Apr. 1	2	29·072	44·8	39·5			Clear from zen. to S. : heavy clouds to N.
	5	29·132	40·7	38·5			Overcast : clearing to northward : rain.
	20	29·523	37·5	33·4	47·2		A good deal overcast : clearing to N. (windward.)
	23	29·591	39·7	35·0	35·4	0·03	Overcast : high wind.
Apr. 2	2	29·630	37·5	34·5			Storm of hail : high wind.
	5	29·647	41·3	36·3			Open sky : very wild.
Apr. 3	20	30·102	38·1	36·1	47·0		Clear : cir.-cum. : cir.-str.
	23	30·118	43·3	38·8	28·8	0·00	Clear : cum. : cir.-str.
Apr. 4	2	30·096	48·2	40·8			Cir.-str. : a few cumuli.
	5	30·083	50·7	42·4			Clear : cir.-str.
	20	30·085	41·8	39·3	50·5		Fine and clear : a few cir.-str.
	23	30·090	49·6	43·5	31·5	0·00	Clear.
Apr. 5	2	30·066	54·6	46·9			Id.
	5	30·032	54·5	46·6			Id.
	20	30·029	36·0	34·5	55·4		Clear.
	23	30·015	48·1	43·5	29·0	0·00	Id.
Apr. 6	2	29·961	53·6	47·5			Id.
	5	29·915	52·1	45·6			Id.
	20	29·844	42·3	42·0	54·9		Overcast : light rain.
	23	29·834	43·7	43·1	39·2	0·00	Id.
Apr. 7	2	29·821	45·9	44·5			Id.
	5	29·764	41·8	40·5			Id.
	20	29·983	36·9	36·0	47·8		Clear.
	23	29·982	49·1	44·6	33·1	0·00	Id.
Apr. 8	3	29·952	52·6	45·6			Id.
	5	29·945	53·6	47·6			Id.
	20	30·145	33·6	33·1	54·8		Clear.
	23	30·149	46·6	42·5	27·2	0·00	Id.
Apr. 9	2	30·141	53·0	46·4			Id.
	5	30·112	53·6	47·2			Id.
Apr. 10	20	30·129	35·6	35·6	57·1		Clear.
	23	30·134	46·4	41·3	29·0	0·01	Id.
Apr. 11	2	30·128	46·9	41·4			Cum.-str.
	5	30·120	45·9	40·8			Cumuli.
	20	30·137	38·4	37·4	48·2		Fair : many cumuli.
	23	30·111	43·7	38·7	27·8	0·00	Cloudy : cumuli.
Apr. 12	2	30·091	45·6	39·7			Cumuli : cir.-cum.
	5	30·051	44·6	38·5			Clear : a few cumuli.
	20	30·018	40·5	35·6	47·0		Overcast : cumuli.
	23	30·023	42·5	37·5	34·0	0·00	Id. : id.
Apr. 13	2	30·029	48·8	38·3			Open sky : cumuli.
	5	30·012	43·4	37 8			Id. : id.

March 30^{d} 22^{h}. Index of maximum thermometer suspected to have been shaken along the tube by the wind.

Göttingen Mean Time of Observation.		Barometer Corrected.	Thermometers.			Rain Gauge B.	State of the Sky.
			Dry.	Wet.	Max. and Min.		
d.	h.	in.	°	°	°	in.	
Apr. 13	20	30·038	39·8	36·8	45·3		A good deal overcast : cum. : strong breeze.
	23	30·021	43·3	39·2	36·6	0·00	Id. : id.
Apr. 14	2	29·998	44·9	41·0			Id. : id. : high wind.
	5	30·004	45·2	42·0			Id. : id. : id.
	20	30·076	42·5	39·5	46·8		Overcast : strong breeze.
	23	30·093	43·5	41·2	40·7	0·01	Id. : high wind.
Apr. 15	2	30·096	44·9	40·8			Id. : id. : clouds breaking.
	5	30·094	43·5	40·2			Id. : a few openings.
	20	30·137	42·2	39·5	46·2		Overcast : calm.
	23	30·154	45·1	41·3	39·2	0·00	Id. : id.
Apr. 16	2	30·134	48·1	43·4			Open sky : cumuli.
	5	30·100	49·6	43·8			Clear.
Apr. 17	20	30·009	35·5	35·4	52·5		Misty.
	23	29·984	51·6	47·4	30·0	0·00	Clear.
Apr. 18	2	29·957	60·6	51·9			Id. : cir.-cum.
	5	29·938	61·6	53·9			Id. : cum.
	20	30·000	45·8	43·5	62·7		Clear : cir.-cum. : cir.-str.
	23	29·996	53·6	48·6	37·6	0·00	Id. : id. : id.
Apr. 19	2	29·956	60·4	52·4			Id. : id. : id. : a few cum.
	5	29·931	61·3	53·3			Id. : id.
	20	29·997	48·6	46·6	63·2		Clear.
	23	29·984	57·1	50·9	36·1	0·00	Id.
Apr. 20	2	29·959	63·2	53·3			Id.
	5	29·937	63·1	53·9			Id.
	20	29·971	43·5	41·7	65·4		Clear in zenith : hazy on hor.
	23	29·964	56·8	49·1	33·9	0·00	Clear : almost no wind.
Apr. 21	2	29·924	65·5	51·9			Cir.-str. over $\frac{1}{4}$ of sky, chiefly to W.
	5	29·890	66·5	55·8			Sky covered with diffuse cirri.
	20	29·883	45·6	43·0	66·8		Clear.
	23	29·849	60·2	50·8	36·1	0·00	Id.
Apr. 22	2	29·814	67·3	52·5			Id. : a few cir.-str.
	5	29·783	65·0	50·8			Cir.-str. : reticulated cirri.
	20	29·810	41·8	41·3	65·8		Overcast : foggy.
	23	29·812	47·3	45·3	37·3	0·00	Clear : cirri : a few cumuli.
Apr. 23	2	29·761	61·8	55·6			Id. : id.
	5	29·735	61·0	51·6			Id. : id.
Apr. 24	20	29·912	……	……	64·4		Overcast.
	23	29·933	49·5	47·8	40·2	0·00	Haze just cleared off : a few cum. to W.
Apr. 25	2	29·922	64·9	54·7			Clear : a few cumuli.
	5	29·929	62·5	53·5			Clear and calm : a few light cum. to S.
	20	30·003	40·5	39·8	63·4		Fog.
	23	29·989	55·7	50·4	31·2	0·00	A patch of mottled cirri to N.
Apr. 26	2	29·974	62·8	54·8			Clear.
	5	29·959	60·8	54·8			Id.

April 15^d 20^h. Observation made at 20^h 20^m.
April 25^d. The previous observations were made by Mr. Russell.

DAILY METEOROLOGICAL OBSERVATIONS, APRIL 26—MAY 4. 1842.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.			Rain Gauge B.	Wind.		State of the Sky.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
Apr. 26	20	0	29·991	41·8	40·0	60·9		0·0				Clear : calm.
	23	0	29·965	54·7	50·9	28·3	0·00	…				Id.
Apr. 27	2	0	29·925	58·3	54·8			2·0				Id.
	5	0	29·904	55·1	52·7			…				Id.
	20	0	29·927	36·7	36·3	60·9		0·2			10·0	Overcast.
	23	0	29·934	45·8	43·4	28·2	0·00	0·2	NE.		0·5	Cir.-str. to N. and NE.
Apr. 28	2	0	29·896	58·3	54·9			0·2	NE.		0·3	Cir. and cir.-str. to N. and SE.
	5	0	29·869	60·8	58·1			1·5	NE.		0·5	A low line of cir.-str. to NE.
	20	0	29·908	47·5	40·5	60·7		0·0			0·3	Cir.-str. to SW.
	23	0	29·893	58·4	55·7	28·4	0·00	…			0·0	Clear.
Apr 29	2	0	29·862	64·8	61·9			0·8	SE.		0·3	Cir.-str. to SW. and W.
	5	0	29·839	62·3	60·8			0·8	SE by E.		0·8	Cir. and cir.-str. to SW. and W. : a small patch to NW.
	20	0	29·842	39·3	38·6	63·4		0·5	NE.		10·0	Overcast.
	23	0	29·837	47·8	45·8	34·0	0·00	0·3	NE.		9·0	Cumuli.
Apr. 30	2	0	29·819	49·2	48·1			1·8	NE.		0·8	Cum. on hor. from SE. round by N. to NW.
	5	0	29·796	50·7	49·5			0·8	NE.		0·3	A small patch of cir.-str. to NE.
May 1	20	0	30·010	43·9	43·1	53·0		0·0			10·0	Clouds breaking.
	23	0	29·979	49·5	47·9	33·7		…			0·2	Sky milky : cirro-strati to S.
May 2	2	0	29·915	63·9	60·8			1·0	SE.		3·0	Scattered cumuli.
	5	0	29·891	61·8	59·2			0·5	SE by E.		2·5	Cumuli chiefly to W. and NW.
	20	0	29·779	40·8	39·7	63·5		0·0			0·1	Sky milky to E. : streaks of cirri.
	23	30	29·706	54·4	52·9	28·8		0·1	E.		1·0	Detached cum. : bands of cirro-cum.
May 3	2	0	29·649	60·3	58·0			0·8	SE.	SE.	5·0	Cum. with cir. tails : cir.-cum. : hazy to SE.
	5	0	29·602	59·0	57·0			0·8	NNE.		9·0	Electric-looking cumuli : sky milky.
	20	0	29·611	47·5	46·5	63·3		0·3	NW.	NW.	10·0	Heavy black cumuli.
	23	0	29·611	51·4	50·0	46·2		0·3	NW.		9·8	Sky to NW.
May 4	2	0	29·593	56·1	53·8			0 3	NW.		6·0	Heavy detached cumuli.
	5	0	29·574	56·0	……			0·3	NW.		3·0	Cumuli round hor. : a few cir.-str.

April 27ᵈ. The scale used in the estimation of the quantity of clouds is 0 to 10; 0 indicating no clouds, 10 no sky. The estimations were made in units and quarters, although given here in decimals. 9·9 signifies small patch or patches of sky; 0·1 small patch or patches of clouds.

The scale used in the estimations of the force of the wind was 0 to 6; it was found, however, on comparison with the Anemometer erected Oct. 21, that estimations under 1·5 were nearly equivalent to the same quantities by the Anemometer, that is, pounds of pressure on the square foot of surface: for estimations beyond 1·5 the value is more, increasing to nearly double the value at 3·0.

The direction of the wind is estimated with the aid of a handkerchief.

May 2ᵈ and 23ᵈ. Perpendicularity of the barometer verified, which was done at intervals afterwards, but no adjustment required.

May 1ᵈ. The readings of the rain gauge B. were lost during the month of May, the sum for the month, however, was preserved.

May 3ᵈ. The motion of the clouds are determined by reference to the walls of the Observatory, which are in the meridian and prime vertical.

May 4ᵈ 5ʰ. No readings of the wet bulb thermometer are given till May 18ᵈ, as it was then discovered that the silk round the bulb had lost its power of capillary attraction to such an extent as to render the mass of the readings from May 4ᵈ valueless; probably this even affects the observations for some days previous to May 4. It seems likely that Mr. Russell had not changed the silk for some time.

Göttingen Mean Time of Observation.				BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGE B.	WIND.		STATE OF THE SKY.		
					Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m	in.	°	°	°	in.	0–6			0–10.	
May	4	20	0	29·488	46·4	......	62·3		0·3	SSW.		10·0	Rain, slight drizzle.
		23	0	29·415	50·5	......	39·3		0·8	SSW.		10·0	Cumuli : breaking to SE.
May	5	2	0	29·304	52·8	......			1·8	SSW.	SW.	10·0	Scud.
		5	0	29·209	52·5	......			0·8	SSW.		10·0	
		20	0	28·892	49·8	......	57·2		0·5	S by E.?	SW.	9·9	Scud : sky to SE by E.
		23	0	28·869	51·8	......	43·6		1·0	SSW.		9·0	Cumuli : nimbi : heavy shower.
May	6	2	0	28·840	54·8	......			1·0	SSW.		7·0	Detached cumuli : nimbi ?
		5	0	28·827	52·8	......			1·0	SSW.	SW.	9·8	Black cumuli and scud.
		20	0	28·772	49·2	......	57·7		0·5	SW.	SW.	10·0	Cumuli : scud.
		23	0	28·632	47·8	......	43·9		0·3	SSW.		10·0	Heavy rain.
May	7	2	0	28·550	47·9	......			1·0	SSW.		10·0	Id.
		5	0	28·539	49·9	......	......		0·5?	SW.	SW.	10·0	Id.
							40·4						
May	8	20	0	29·542	44·7	......	57·4		......		NW : 0	9·0	Cumuli : scud : linear cirri above.
		23	0	29·641	49·3	......	36·6		0·5		NW.	9·8	Id. : id.
May	9	2	0	29·703	52·9	......			0·5	NW.		9·0	Id. : id.
		5	0	29·749	52·7	......			......			6·0	Id.
		20	0	29·907	45·6	......	55·4		0·3	W.		0·3	Linear cirri to E.
		23	0	29·889	53·0	......	33·1		0·3	NW.?		2·0	Detached cumuli to SE.
May	10	2	0	29·864	58·1	......			0·3			6·0	Id.
		5	0	29·804	59·0	......			0·3	SW.		8·0	Cumuli.
		20	0	29·694	50·7	......	62·2		0·5	SSE.?	SW.	8·0	Patches of scud : diffuse cirri : cirro-str.
		23	0	29·657	54·0	......	46·3		0·8	SE by S.		6·0	Cumuli 4 : cirro-cum. 2 : cirri 1.
May	11	2	0	29·621	58·2	......			1·0	SE by S.	SE : 0.	8·0 ?	Electric-like cum. : cirro-cum. : linear cirri.
		5	0	29·615	51·9	......			......			10·0	Heavy shower of rain.
		20	0	29·731	43·8	......	60·0		0·0			10·0	Smart shower.
		23	0	29·754	44·2	......	42·8		0·0			10·0	Light rain : rain since 20ʰ.
May	12	2	0	29·765	50·8	......			0·0		SW : 0.	9·0	Heavy cumuli : diffuse cirri.
		5	3	29·761	53·4	......			......			4·0	Cumuli.
		20	0	29·821	47·6	......	56 1		0·0		0.	8·0	Cirro-cumuli.
		23	0	29·809	55·0	......	38·9		0·0			7·0	One or two cum. : diffuse cir.-cum. : haze and linear cirri.
May	13	2	0	29·797	62·6	......			0·0		SE.	9·8	Cumuli : irregular cir.-cum. : very hazy.
		5	0	29·795	58·1	......			0·0		S.	10·0	Like buttermilk : a few cumuli.
		20	0	29·941	52·1	......	66·9		0·0			4·0	Flaky cir.-cum. : haze : cirri.
		23	0	29·962	59·1	......	43·3		0·1			1·0	Cum. round hor. : dense haze to E. : sky milky.
May	14	2	0	....	......	......	...		......				
		5	0	29·959	63·9	......	65·6		......			10·0	Cirrous haze.
							42·2						

May 7ᵈ 7ʰ. The barometer began to rise, so that 5ʰ is probably the minimum.

May 8ᵈ 20ʰ. The maximum temperature registered is that of Sunday, and the minimum that of this morning; previously the maxima and minima registered on the Monday mornings may be either those of Saturday or Sunday; for the future, the maximum and minimum read on Sunday are placed opposite 5ʰ of the Saturday, and those read on Monday morning are placed opposite 20ʰ of that morning.

Göttingen Mean Time of Observation.			BARO-METER Corrected.	THERMOMETERS.			RAIN GAUGE B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Esti-mated force.	Direction.	Clouds moving from	Quan-tity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
May 15	20	0	30·276	50·9	……	65·0		……			0·3	Sky rather milky.
	23	0	30·262	60·0	……	40·5		0·3			0·3	Cum. on NNW. hor.: patches of cirri.
May 16	2	0	30·223	65·0	……			0·3	SE by S.		0·5	Cum. to NW., W., S., and SE., hor.
	5	0	30·198	64·3	……			0·3	SE by S.		0·3	Cumuli to S. horizon.
	20	0	30·202	48·0	……	66·1		0·0			10·0	
	23	0	30·175	50·6	……	45·9		0·3	NE.		4·0	Cumuli rapidly disappearing.
May 17	2	0	30·129	56·7	……			0 5	NE.		1·5	Detached cumuli on hor.: cirri.
	5	0	30·084	56·7	……			0·3	NE.		0·5	Cirri to S.
	20	0	29·931	44·6	……	57·2		……			10·0	Cumuli: cirro-cum.: sky hazy.
	23	0	29·878	51·2	……	43·0		0·0			7·0	Cumuli: cir.-cum.: linear cirri.
May 18	2	0	29·810	59·7	54·5			……			2·0	Cumuli on hor.: patches of cir.-cum.
	5	0	29·739	59·4	53·9			0·5	NE.		2·0	
	20	0	29·610	47·2	45·7	61·1		0·0			10·0	Scud.
	23	0	29·579	49·9	47·1	43·5		0·0			10·0	Id.
May 19	2	0	29·546	50·1	46·6			0·5	ESE.		10·0	Id.
	5	0	29·520	49·3	46·6			0·0			10·0	Id.
	20	0	29·340	50·8	48·4	55·4		……			4·0	Cumuli: cirri.
	23	0	29·307	57·3	50·5	46·3		0·5	S.	SSW: 0.	6·0	Cumuli: cirri.
May 20	2	0	29·278	59·2	52·0			0·8	S.	S.	9·0	Heavy cum.: like thunder to S. and E.
	5	0	29·240	53·9	49·3			1·0			10·0	Cumuli: nimbi: rain to S and E.
	20	0	29·367	48·8	45·6	61·1		……		SSW.	8·0	Few cumuli: cirro-cumuli.
	23	0	29·377	51·9	46·7	39·5		0·5		SW.	9·9	Cumuli: scud.
May 21	2	0	29·379	54·2	49·0			……			10·0	Cumuli: scud.
	5	0	29·343	54·9	49·8	59·8		0·3			10·0	Id.: id.
						35·1						
May 22	20	0	29·535	50·0	48·6	63·9		……			10·0	Smart shower commenced.
	23	0	29·555	47·8	47·8	44·7		……			10·0	Heavy rain began at 22h 40m.
May 23	2	0	29·530	61·8	52·9			0·8	SE.	SSE.	4·0	Cumuli.
	5	0	29·532	62·9	52·8			0·8	SE.		2·0	Id.
	20	0	29·696	51·8	48·6	62·9		0·3			4·0	Few cumuli: cirri.
	23	0	29·706	59·7	51·9	39·0		0·8		S.	4·0	Cumuli: scud: haze.
May 24	2	0	29·725	54·0	50·2			0·0			10·0	
	5	0	29·706	53·3	50·4			0·0			10·0	Cumuli: cirro-strati.
	20	0	29·505	50·1	49·7	61·7		…			10·0	Scud ?
	23	0	29·539	55·8	52·0	46·5		0·3			9·9	Cumuli: scud.
May 25	2	0	29·552	60·7	54·3			0·3		SW: 0.	9·0	Cumuli-cirri: like thunder.
	5	0	29·580	53·7	52·0			…			10·0	Cumuli, nimbi, &c.: thunder storm.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GUAGE B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0–6.			0–10.	
May 25	20	0	29·611	52·0	51·4	65·4		...			10·0	Dense mist.
	23	0	29·586	59·7	53·0	42·0		0·2	SE.	SE.	6·0	Heavy black cum. : still like thunder.
May 26	2	0	29·573	57·8	52·1			0·5	SE by E.	SE.	9·0	Cumuli.
	5	0	29·576	52·9	49·7			...		SE.	9·8	Black cumuli : sky to NW.
	20	0	29·573	50·4	49·4	61·7		0·0			10·0	Foggy.
	23	0	29·587	57·2	53·6	43·0		0·3	SW.		9·9	Black cumuli : sky to NE.
May 27	2	0	29·604	61·0	54·2			...		SW.	9·0	Cumuli in fine ranges.
	5	0	29·612	62·1	53·3			...		SW : 0.	5·0	Id. : id. : cirri.
	20	0	29·682	52·1	49·1	64·8 ?		0·5			10·0	Scud.
	23	0	29·703	58·3	51·7	46·4		0·5	W.		6·0	Id.
May 28	2	0	29·700	58·5	51·2			0·8	W.		9·0	Id.
	5	0	29·719	59·8	51·0	64·8 47·3		0·5			2·0	Id.
May 29	20	0	29·517	54·3	50·1	63·4		0·6	SW ?	SW.	6·0	Scud : cir.-str. : cir.-cum.
	23	0	29·530	58·0	52·1	48·5		0·8		SW.	7·0	Id. : id.
May 30	2	0	29·582	56·6	50·7			1·0	W ?		9·0	Id. : showers around.
	5	0	29·602	57·4	50·0			0·5			8·0	Cumuli : id.
	20	0	29·804	52·9	47·8	62·7		0·8	SW.		3·0	Cumuli.
	23	0	29·825	57·0	49·8	45·1		0·6	SW.		4·0	Id.
May 31	2	0	29·827	60·9	51·3			0·5		SW : 0.	7·0	Id. : cirri.
	5	0	29·844	60·2	51·3			...		SW.	8·5	Scud.
	20	0	29·874	53·9	49·5	64·4		0·3			9·0	Cirri : cirro-strati,—breaking.
	23	0	29·830	57·7	50·6	41·7		...			10·0	Cumuli : cirri.
June 1	2	0	29·763	55·7	52·3			0·3			10·0	Id.
	5	0	29·683	56·9	55·0			0·8			10·0	Id. : nimbi ? passing shower.
	20	0	29·944	50·9	45·9	61·3		...		SE.	0·3	Cumuli : cirri.
	23	0	29·994	56·1	47·4	45·0	0·05	0·3		W.	3·0	Id. : id.
June 2	2	0	30·009	59·0	49·8			0·3			5·0	Id. : id.
	5	0	30·015	62·2	51·9			...			3·0	Id. : id.
	20	0	30·055	51·5	47·9	65·8		0·0			0·0	
	23	0	30·018	63·0	55·9	36·4	0·00	0·3	W.		4·0	Cumuli : cir.-str. : cir. : cir.-cum.
June 3	2	0	29·974	68·3	59·8			0·3			7·0	Cumuli.
	5	0	29·938	68·0	59·9			0·3			8·0	Cumuli : diffuse cirri.
	20	0	29·861	61·0	56·6	72·6		0·0			1·5	Cirri from cirrous nests.
	23	0	29·815	67·2	59·3	44·8	0·00	0·0			5·0	Cumuli : cirri : cirro-cum.
June 4	2	0	29·783	69·7	58·1			...			7·0	Cum. : cir.-cum. : cir.-str. : cir. : cir. haze.
	5	0	29·765	65·9	58·5	73·0 52·4		0·0			10·0	Cirro-strati : cirrous haze.

May 27^d. A new piece of silk put on the wet bulb thermometer; the bulb was always wetted previous to reading since May 18^d. The silk was not changed till it was attempted to discover, by readings before and after wetting the bulb, to what extent the observations before May 18^d were valueless.

Göttingen Mean Time of Observation.				BARO-METER Corrected.	THERMOMETERS.			RAIN GAUGE B.	WIND.		STATE OF THE SKY.		
					Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
June	5	20	0	29·805	54·4	51·5	69·9 ?		0·0			10·0	Breaking to E.
		23	0	29·831	61·8	56·0	50·8	0·02	0·0		S.	7·0	Scud.
June	6	2	0	29·846	65·1	57·9			0·5			...	
		5	0	29·866	65·2	57·0			0·5			1·5	Cumuli to S.
		20	0	30·019	49·4	48·6	66·9		0·0			10·0	Thick fog.
		23	0	30·022	59·0	55·5	44·4	0·00	0·3			8·0	Few cumuli : cirri.
June	7	2	0	30·020	66·9	61·1			...			3·0	Id. : cirrous haze.
		5	0	30·029	72·4	62·8			0·5	ESE.		4·0	Id. : id.
		20	0	30·167	58·8	54·4	74·0		0·0			0·3	Cirri.
		23	0	30·166	67·8	56·9	44·0	0·00	0·0			1·0	Cirro-cumuli : cirri.
June	8	2	0	30·154	70·8	59·1			...			0·3	Cumuli : cirri.
		5	0	30·139	69·5	58·6			0·8	E by N.		0·0	Gusty.
		20	0	30·171	50·3	49·8	71·2		...			10·0	Heavy mist.
		23	0	30·171	59·2	55·1	40·5	0·00	0·3			0·3	Cirri.
June	9	2	0	30·140	65·2	56·8			0·8	NE.		0·1	Cirri.
		5	0	30·117	64·5	56·9			0·6	NE.		0·0	Sky brownish, then milky above hor.
		20	0	30·079	57·2	51·9	65·9		0·0			1·0	Cirri.
		23	0	30·060	59·7	54·9	40·6	0·00	0·5	NE.		2·0	Cumuli : cirri.
June	10	2	0	30·050	60·8	56·0			0·5	NE.	NE.	1·0	Scud.
		5	0	30·033	57·0	53·4			0·3	NE by N.	NE.	10·0	Id.
		20	0	30·106	53·0	50·7	61·9		0·0			10·0	Scud.
		23	0	30·107	60·3	56·0	50·1	0·00	0·0			9·8	Indefinable mass.
June	11	2	0	30·090	65·6	58·9			0·0			0·0	
		5	0	30·086	64·9	58·5	68·6		0·3	NE by E.		0·0	
							47·3						
June	12	20	0	30·108	55·0	52·9	67·1		0·0			2·0	Vapoury cumuli.
		23	0	30·056	67·2	62·0	42·2	0·00	0·0			0·0	
June	13	2	0	29·997	75·2	62·8			0·0			1·0	Cumuli : cirro-strati.
		5	0	29·938	77·6	61·7			0·0			1·8	Id. : id.
		20	0	29·921	54·9	53·0	80·8		......			10·0	Light fog.
		23	0	29·905	63·6	58·2	49·3	0·00	0·3			7·0	Cum. : cir.-cum. : cir.-str.
June	14	2	0	29·845	70·2	62·9			0·3	ENE.		4·0	Cum. : cir.-str. : like thunder.
		5	0	29·817	68·4	58·9			0·5	NNW.		9·0	Cumuli : sky in patches.
		20	0	29·866	53·3	47·6	73·9		......			8·5	Cumuli : cirri : sky to N.
		23	0	29·810	59·4	50·8	51·0	0·00	0·3	NNW.		4·0	Id. : id.
June	15	2	0	29·835	62·8	51·7			0·6	NNW.		1·5	Id. : id.
		5	0	29 780	63·2	51·0			0·0			9·0	Id. : id. : cirro-str.

June 13ᵈ 4ʰ. Thermometer in the sun 110° +.
June 13ᵈ 20ʰ. The maximum temperature registered is the mean of two thermometers which differed 4°. The difference is probably due to reflected heat.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.			Rain Gauge B.	Wind.		State of the Sky.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
June 15	20	0	29·695	59·3	52·5	69·3		0·8	NNE?	NW.	3·0	Cumuli: cir.-str.
	23	0	29·737	58·7	53·0	48·5	0·00	0·8	NNE.		9·8	Ragged cumuli.
June 16	2	0	29·782	58·0	51·4			0·8	NNE.		9·8	Scud: sky to NE.
	5	0	29·808	56·9	50·6			0·3	NNE.		7·0	Cumuli.
	20	0	29·935	48·9	44·6	63·7		...			10·0	Cumuli: cirri,—breaking.
	23	0	29·950	52·7	46·4	46·1	0·00	0·3			8·5	Id.
June 17	2	0	29·938	56·9	46·8			0·3	N.		7·0	Id.
	5	0	29·937	54·7	48·3			0·3			7·0	Id.: cirri.
	20	0	29·826	51·1	46·8	58·4		0·3			9·9	Cumuli.
	23	0	29·765	57·0	50·8	42·4	0·00	0·3	SW.	SW: 0.	9·0	Scud: cum.: woolly cir.-cum.: cir.-str.
June 18	2	0	29·705	60·8	51·2			0·3	SW.	SW.	9·8	Id.: id.: cirri.
	5	0	29·650	61·5	52·0	67·5 47·2		0·5	SW.	SW: 0.	9·5	Id.: id.: cir.-cum.
June 19	20	0	29·490	54·7	51·8	56·6		0·3	SSE.	SE.	10·0	Scud: drops of rain.
	23	0	29·484	56·5	54·0	44·4	0·00	0·0			10·0	Light showers.
June 20	2	0	29·457	65·9	60·1			0·6	SSE.	SSE: 0.	9·0	Cumuli: nimbi? cir.-cum.
	5	0	29·421	63·5	58·6			0·5	SE.	SE: 0.	9·5	Scud: cir.-str.: like thunder.
	20	0	29·350	57·2	55·8	67·6		0·0			10·0	Scud: nimbi.
	23	0	29·336	63·9	60·1	53·0	0·20	0·3	SSW.	SSW.	8·8	Cum.: nimbi: scud.: cir.-cum.: cir.-str.
June 21	2	0	29·315	69·3	61·8			0·3			5·5	Towering cum. and nimbi: scud: cirri: like thunder.
	5	0	29·288	61·6	59·2			0·5	SSE.	SE.	10·0	Thunder-storm gone off to NW.: nimbi: haze.
	20	0	29·348	55·7	50·7	71·9		0·5	W.	W: 0.	2·0	Scud: cir.-str.: cum.-str.: cir.
	23	0	29·420	59·3	51·1	51·7	0·44	0·5		W.	5·0	Cumuli: reticulated cirri.
June 22	2	0	29 424	64·6	54·6			0·8		WSW.	7·0	Cumuli: cirri.
	5	0	29·436	62·6	53·9			0·6			8·0	Id.: cirrous-haze chiefly: cir.-cum.
	20	0	29·493	57·5	52·9	66·6		0·0			0·5	Cirri.
	23	0	29·472	60·3	52·0	40·0	0·00	0·0			3·0	
June 23	2	0	29·447	63·1	54·5			...			...	Cumuli: cirri.
	5	0	29·418	60·0	52·1			0·3			7·0	
	20	0	29·232	57·8	52·7	65·8		1·0		SW: 0.	7·0	Cumuli: scud: cirri.
	23	0	29·201	62·4	......	51·7	0·00	0·8		SW: 0.	10·0	Cum.: cir.-haze: like thunder: drops of rain.
June 24	2	0	29·173	63·0	55·0			1·3	SW v.	SW: 0.	8·5	Cum.: cir.-str.: cir.-cum.: cir.-haze.
	5	0	29·146	60·9	54·5			1·3	SW v.	SW: 0.	7·0	Id.: id.: id.: id.
	20	0	29·242	55·6	52·0	65·3		0·8		SW: 0.	10·0	Cumuli: cirro-cumuli.
	23	0	29·211	58·0	54·2	51·2	0·01	1·0	SSW v.	SW.	10·0	Scud: nimbi?
June 25	2	0	29·096	57·7	53·8			1·3	SSW.	SW.	10·0	Id.: id.: light rain.
	5	0	28·950	53·6	51·8	60·6 48·3		2·0			10·0	Heavy rain.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0–6.			0–10.	
June 26	20	0	29·726	58·5	52·2	61·3		0·8	WNW.	WNW.	2·5	Scud : cirro-cumuli.
	23	0	29·787	60·8	52·7	50·3	……	1·5	WNW.	WNW.	6·5	Id. : cumuli.
June 27	2	0	29·835	63·6	53·5		0·35	1·5	WNW.	WNW.	7·5	Id. : id.
	5	0	29·884	62·7	53·7			…		WNW.	7·0	Cumuli with cir. edges : cirri.
	20	0	29·885	51·6	50·6	64·3		0·0		SW.	10·0	Scud : light rain.
	23	0	29·839	56·7	55·8	43·2	0·100	0·0			10·0	Id.
June 28	2	0	29·802	61·0	59·0		0·10	0·8			10·0	
	5	0	29·757	60·1	58·9			1·0	SSW.		10·0	Smart shower.
	20	0	29·630	55·4	51·1	65·6		1·0	W ?	W.	9·5	Scud : cumuli : cir.-cum.
	23	0	29·660	57·8	52·0	51·6	0·066	1·3	W.	W.	9·5	Id. : id. : cirri.
June 29	2	0	29·698	58·8	52·1		0·07	1·3		W.	9·8	Id.
	5	0	29·710	59·1	51·7			…		W.	9·5	Id. : id.: id. : like thunder.
	20	0	29·716	56·6	50·7	62·2		0·3		W : various.	2·0	Cumuli : scud : cirri.
	23	0	29·718	60·5	52·4	46·4	0·000	0·5		N : W.	3·5	Id.
June 30	2	0	29·710	61·1	52·4		0·00	0·1			9·5	Id. : id. : hazy sky.
	5	0	29·685	63·1	54·4			0·0			5·0	Id. : cirrous-haze.
	20	0	29·602	58·3	52·8	67·1		0·0		W.	8·0	Cum. : cirro-strati : cirri.
	23	0	29·565	62·6	56·0	48·3	0·000	0·3		SW.	4·0	Cumuli : hazy to E.
July 1	2	0	29·535	64·3	56·6		0·00	0·1			8·5	Id. : cir.-haze : like thunder.
	5	0	29·498	64·6	55·5			0·3		SW.	8·0	Cum. : scud. : cir. : cir.-haze.
	20	0	29·382	51·7	49·9	62·8		…			10·0	Scud : cirri : light rain.
	23	0	29·395	50·4	47·8	44·8	……	…			10·0	Id. : cumuli.
July 2	2	0	29·415	55·3	51·5		0·13	0·5			9·9	Id. : id. : rain.
	5	0	29·465	56·9	51·7	63·6		1·0			6·0	Cumuli : cirro-cumuli.
						44·7						
July 3	20	0	29·382	50·6	49·6	63·6		…			10·0	Scud.
	23	0	29·329	60·0	56·7	47·6	……	…			10·0	
July 4	2	0	29·261	59·8	58·1		0·34	…			10·0	Scud.
	5	0	29·200	63·7	59·2			0·3			10·0	Cumuli : thick cir.-haze.
	20	0	28·987	56·2	54·8	62·7		1·5	SSW ?	SW : 0.	9·5	Scud, cumuli, &c. : light rain.
	23	0	29·003	59·6	56·0	49·7	0·696	1·5	SW by S.	SW.	10·0	Id. : id. : id. : id.
July 5	2	0	29·059	59·2	53·4		0·09	2·8	SW.	SW : 0.	8·0	Id. : cir.-str.
	5	0	29·139	56·7	51·1			2·5	SW.	SW : 0.	8·5	Id. : cirri.
	20	0	29·564	52·6	47·8	63·5		0·8		NNW : 0.	9·9	Scud : cir.-cum. : cir.-str. : thick cir.-haze.
	23	0	29·641	57·4	50·7	48·1	0·000	1·8		NNW : 0.	7·5	Id. : id. : id. : id.
July 6	2	0	29·718	60·8	52·3		0·00	1·0		NNW : 0.	8·0	Id. : cir.-str. : cir.-haze to NE.
	5	0	29·779	59·6	50·4			0·8	NNW.	NNW.	4·5	Cumuli : cir.-str.

June 26^{d}. The wind changed on Sunday morning from SW. Blowing very hard on Saturday night and Sunday.

June 28^{d}. Observatory rain gauge (A.) placed on 26^{d}. Readings made at noon, Makerstoun time, in order to be comparable with the garden gauge B.

July 4^{d} 23^{h}. The rain registered is the amount fallen since June 30^{d} 23^{h}.

July 6^{d}. Porcelain index found immoveable in the tube of the maximum thermometer.

July 6^{d}—July 15^{d}. The maximum temperature is obtained from a register thermometer A_2, by Adie, Edinburgh ; the minimum is the mean of the indications of the two minimum thermometers A_1 and A_2.

Göttingen Mean Time of Observation.				BAROMETER. Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
					Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
July	6	20	0	29·775	48·9	48·2	63·7		0·1			10·0	Indefinable mass : breaking to E.
		23	0	29·700	56·6	51·7	38·4	0·000	0·3			10·0	Cum. to NE : thick cir.-haze.
July	7	2	0	29·620	59·1	52·9		0·00	0·8	S.	S.	10·0	Id. : id.
		5	0	29·547	54·9	52·0			0·3	S.		10·0	Scud : id. : rain.
		20	0	29·420	51·6	49·1	60·9		0·3		SW : S.	5·0	Scud : cir.-str. : cir.-cum.
		23	0	29·394	58·9	52·0	43·5	0·026	0·3		SSW.	5·0	Piles of cum. : scud. : cir.-cum. : dark to SSW.
July	8	2	0	29·365	60·3	53·4		0·01	0·3		SSW.	7·5	Cum. : nimbi : showers.
		5	0	29·334	55·7	52·7			0·0			9·5	Cum. : nimbi : cir.-haze : smart showers.
		20	0	29·343	54·0	52·7	62·7		0·0		NNW : 0.	9·9	Watery cumuli : cir.-cum.
		23	0	29·331	60·1	55·1	48·0	0·161	0·1		0.	9·9	Ranges of cum. : large cirro-cum.
July	9	2	0	29·321	61·8	55·2		0·13	1·0	SW by S.	SSW : 0.	9·8	Id. : id.
		5	0	29·286	60·1	53·4	63·7		1·3	SSW.	SSW : 0.	8·0	Id. : id. : cir.-str.
							48·7						
July	10	20	0	29·286	51·0	50·7	63·4		0·3		SE.	10·0	Scud : heavy rain.
		23	0	29·178	56·6	55·6	48·0	0·712	0·6	S by E.	SE.	10·0	Id. : id.
July	11	2	0	29·163	64·3	62·2		0·64	1·3			10·0	Id. : heavy showers.
		5	0	29·195	63·5	62·1			0·1		SSW : SSE.	9·9	Cum.-scud : showers lately.
		20	0	29·480	55·8	51·9	67·1		0·4		NNW : S.	2·5	Scud : cir.-str. : cir.
		23	0	29·539	60·4	54·1	51·8	0·148	0·4		W.	7·0	Cumuli.
July	12	2	0	29·592	65·0	56·9		0·11	1·3	SW.	WSW.	8·0	Id.
		5	0	29·635	64·2	56·0			1·0	SW.	SW.	2·0	Id. on horizon : cirri.
		20	0	29·597	58·5	56·6	66·5		0·8		SW.	10·0	Scud : cumuli.
		23	0	29·608	64·5	59·2	51.6	0·013	1·5	SW.	SW.	9·0	Id. : id. : cir.-cum. : showers around.
July	13	2	0	29·655	64·9	58·1		0·11	2·3		SW.	9·8	Id. : id. : cir.-haze : cirri.
		5	0	29·662	62·7	56·8			2·0	SSW.	SW.	4·5	Nimbi ? cumuli.
		20	0	29·921	54·8	50·8	66·0		0·5		WNW : 0.	8·5	Scud : cumuli : cir.-str. : cir.
		23	0	29·943	59·2	52·6	48·4	0·020	0·8			9·2	Ragged cumuli : cir.-haze.
July	14	2	0	29·982	61·1	52·7		0·02	1·3	SW.	W.	7·0	Cumuli.
		5	5	30·008	59·8	51·7			0·5			7·0	Id.
		20	0	30·116	55·8	51·3	66·0		0·3		W.	3·5	Patches of scud : cir. : cir-str.
		23	0	30·127	60·2	52·9	43·4	0·002	0·1		NW.	6·0	Cumuli : cir.-cum. : cir.
July	15	2	0	30·107	66·0	58·2		0·00	0·3			6·0	Cum. : cir.-str. : cirri.
		5	0	30·079	68·5	59·7					WNW.	9·0	Cirro-strati, &c.
		20	0	30·005	58·5	54·8	70·0		0·0			0·1	Patch of cirrus.
		23	0	29·971	68·1	60·6	44·2	0·000	0·5		SE.	2·0	Cumuli.
July	16	2	0	29·934	71·7	60·5		0·00	0·5	SE.		1·5	Cirrous mass.
		5	0	29·887	71·0	60·3	……		0·3			1·0	Flame cirri.
							43·3						

See Note July 6^d—July 15^d, page 90.
July 16^d—July 22^d. The maxima and minima are from the thermometers of A_2.

Göttingen Mean Time of Observation.			BARO-METER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
July 17	20	0	29·682	55·9	53·4	67·0		0·3		E : 0.	10·0	Scud : cir. : cirrous haze.
	23	0	29·700	61·5	55·6	50·6	0·000	0·3			10·0	Id. : cir.-str. : id.
July 18	2	0	29·703	63·0	56·0		0·00	0·5	E.		9·8	Cumuli : cirrous haze.
	5	0	29·698	61·7	56·6			0·5	E.	E.	9·5	Scud. : cum. : id.
	20	0	29·725	55·5	53·5	65·3		1·8	ENE.	E.	10·0	Scud.
	23	0	29·746	56·1	53·6	51·8	0·00	1·5		E.	10·0	Thick scud : wind in gusts.
July 19	2	0	29·728	57·4	53·8		0·00	1·5	E by N.	ENE.	9·5	Scud : cirro-cumuli.
	5	0	29·721	56·5	53·0			1·0			9·9	Id.
	20	0	29·648	52·5	49·5	59·8		0·6		ENE.	10·0	Light mist : tendency to drizzle.
	23	0	29·632	54·1	49·9	50·8	0·000	0·5	NE.	NE.	10·0	Scud.
July 20	2	0	29·626	54·9	51·6		0·00	1·5	NE.	NE.	10·0	Id.
	5	0	29·608	54·1	52·6			0·5			10·0	Id. : light drizzle.
	20	0	29·616	56·6	52·7	57·0		0·3	N by E.		2·0	Cumuli : haze on SE. hor.
	23	0	29·627	58·6	52·9	48·7	0·012	0·8	N by E.	N by E : ENE : 0.	6·0	Scud : cirro-cumuli.
July 21	2	0	29·649	58·8	52·7		0·00	0·5	N by E.		9·0	Id.
	5	0	29·652	58·0	50·9			0·5			2·0	
	20	0	29·824	51·9	47·0	62·6		1·0	N.	N by E.	8·0	Scud.
	23	0	29·861	55·1	48·8	47·8	0·000	0·5		N.	8·5	Id.
July 22	2	0	29·880	59·5	51·9		0·00	1·0	NE by N.	NNW.	3·5	Id.
	5	0	29·900	60·3	53·2			0·5			0·3	Detached cumuli.
	20	0	29·999	48·2	46·7	61·6		0·3			10·0	Indefinable mass.
	23	0	29·984	60·1	55·6	38·5	0·000	0·0			0·0	
July 23	2	0	29·955	72·1	61·3		0·00	0·0			0·1	Patch of scud.
	5	0	29·921	77·9	66·0	78·1 46·6		0·0			0·7	Detached cumuli to S. and N.
July 24	20	0	29·752	56·5	53·4	70·8		0·3			10·0	Flaky cumuli.
	23	0	29·750	60·2	55·1	54·0	0·000	0·3		S by E.	10·0	Cumuli : patches of cir.-haze.
July 25	2	0	29·740	62·9	56·5		0·00	0·5			9·0	Id. : id.
	5	0	29·724	62·2	56·2			0·5	E.		10·0	Id. : hazy.
	20	0	29·788	55·5	52·9	65·8		0·3			10·0	Loose cumuli : cirro-cum. : breaking.
	23	0	29·813	62·7	56·8	51·3	0·000	0·1		SSE : NNE.	8·5	Dark cum. : like thunder.
July 26	2	0	29·821	63·6	57·6		0·00	0·6	E by N.	SE : W.	8·5	Heavy, dark, and towering white cum. : drops of rain.
	5	0	29·845	61·9	55·4			0·4			5·5	Cum. : cir.-cum. : light shower since 2ʰ.
	20	0	29·933	59·8	55·5	66·4		0·1		W by N.	8·0	Loose cum. : cir.-cum. : cir. : cir.-haze.
	23	0	29·936	62·0	53·8	51·0	0·005	0·3			9·5	As at 20ʰ : stormy-like.
July 27	2	0	29·925	64·2	55·0		0·00	0·1			9·8	Nearly as before.
	5	0	29·896	61·5	54·8			0·5		W : 0.	9·9	Nimbi : heavy cum. : cir. : rain to E.

See note, July 16ᵈ—July 22ᵈ, page 91.

July 23ᵈ—Aug. 3ᵈ. The maxima and minima are the means from the thermometers of A_2 and D (two thermometers by Dunn, Edinburgh), excepting on July 29ᵈ, when they are from D alone.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m	in.	°	°	°	in.	0–6			0–10.	
July 27	20	0	29·831	54·7	52·4	6·68		0·4		NNW.	10·0	Scud : cum. : cirro-strati : drops of rain.
	23	0	29·760	59·0	54·0	46·6	0·005	1·0	W.	W.	9·9	Nearly as at 20^h.
July 28	2	0	29·738	59·0	55·2		0·00	0·8	W.		10·0	More muddled than before.
	5	0	29·671	65·5	59·2			0·5	W.	E.	3·0	Cum. : cir. : cir.-haze : rain since 2^h.
	20	0	29·725	52·9	47·8	66·0		0·5		N.	7·5	Loose cumuli.
	23	0	29·751	55·2	51·0	47·3	0·000	1·0	N.	W : 0.	8·8	id. : cirri.
July 29	2	0	29·763	59·3	50·6		0·02	0·6	N.	N.	8·0	Cumuli : id.
	5	0	29·751	59·9	50·7			0·8			……	Id.
	20	0	29·836	54·0	48·8	60·6		0·0		N : W ?	7·0	Loose cumuli : cirri.
	23	0	29·828	60·6	53·5	41·1	0·000	0·4		N.	9·0	Id.
July 30	2	0	29·827	65·1	56·9		0·00	0·3			9·2	Id. : cirri.
	5	0	29·833	64·9	57·8	65·9 51·1		0·4			8·8	Id. : id. : cir.-haze.
July 31	20	0	30·050	58·8	56·0	71·7		0·0			0·2	Cirri to N. and E.
	23	0	30·034	66·9	61·1	47·1	0·000	0·0		SSW.	1·0	Scud : cum. : cirri.
Aug. 1	2	0	30·003	75·1	62·3		0·00	0·5		SW.	3·0	Cumuli.
	5	0	29·972	74·6	63·5			0·6		SW.	3·0	Id.
	20	0	29·874	63·4	58·0	75·3		0·6		SW ?	10·0	A few cumuli : cirri.
	23	30	29·841	69·3	60·4	47·6	0·000	0·5		SW.	10·0	Cumuli : cirrous haze.
Aug. 2	2	0	29·806	70·6	62·8		0·00	0·5			9·0	Id. : id.
	5	0	29·775	71·0	61·9			0·3			4·0	Cirri : id.
	20	0	29·807	51·6	50·1	73·0		0·0			8·5	Cumuli.
	23	0	29·787	70·4	61·1	44·4	0·035	0·1		S.	6·5	Id. : cirro-cumuli.
Aug. 3	2	0	29·765	69·8	62·7		0·00	0·0		SSW.	9·0	Cumuli : cir. : hazy to E. : stormy-like.
	5	0	29·732	70·3	63·4			0·4		WNW.	10·0	Scud : cum. : hazy.
	20	0	29·490	58·3	55·1	73·7		0·8	SW.	SW.	10·0	Scud.
	23	0	29·452	55·9	52·3	50·5	0·006	1·8		SW.	10·0	Id.
Aug. 4	2	0	29·436	62·2	58·0		0·00	2·0		SW.	6·0	Id. : cumuli : sky in zenith.
	5	0	29·479	64·6	55·1			1·0		SW : 0.	6·0	Id. : id. : cirri.
	20	0	29·390	61·7	59·5	67·4		1·8		SW.	10·0	Scud.
	23	0	29·400	65·1	61·2	53·6	0·010	1·8	SW.	SW.	9·9	Id. : light drizzle.
Aug. 5	2	0	29·397	66·0	61·9		0·00	2·3	SW.	SW.	10·0	Id. : id.
	5	0	29·380	65·7	60·9			2·3	SW.	SW.	9·9	Id. : id.
	20	0	29·586	54·4	50·9	69·3		0·3			5·0	Linear and mottled cirri.
	23	0	29·606	60·9	53·7	46·0	0·000	0·6	SW.	SW.	7·0	Loose cum. : woven cir. : cir.-haze.
Aug. 6	2	0	29·593	64·5	54·9		0·00	1·0	SW.	SW : 0.	4·0	Detached cum. : id.
	5	0	29·586	64·5	55·7	65·9 50·6		1·5	SW.	SW by S.	3·0	Id. : cirri : id.

Aug. 4^d, 5^d, 7^d, and 12^d till 25^d. The max. and min. are from D.
Aug. 6^d, 8^d, 9^d, and 10^d. The max. and min. are from A_2 and D.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
Aug. 7	20	0	29·658	57·7	55·5	66·4		0·0		SW : 0.	10·0	Scud : cir.-str. : haze.
	23	0	29·682	61·9	59·1	50·1	0·020	0·3		SW.	10·0	Id.
Aug. 8	2	0	29·681	68·2	61·7		0·00	0·3		SW.	10·0	Heavy cumuli : very hazy to E.
	5	0	29·648	66·1	61·5			0·5		SW.	10·0	Id.
	20	0	29·601	62·0	60·0	69·3		0·8		SW.	10·0	Scud : cum on E. hor.
	23	0	29·617	65·9	61·3	57·2	0·062	1·5		SW : W ?	7·0	Id. : cir.-cum. : cir. : cir.-haze.
Aug. 9	2	0	29·636	63·3	61·6		0·03	0·8	SW.	SW.	8·0	As at 23^{h} : showers.
	5	0	29·630	68·8	61·6			0·6	SW.		7·0	Cumuli ½ : cir. and cir.-haze 6½.
	20	0	29·554	65·1	61·8	69·4		0·3			5·0	Cirro-cum. : cir. : cir.-haze.
	23	0	29·509	73·8	66·2	55·0	0·030	0·3			5·0	Clouds as at 20^{h}, scattered.
Aug. 10	2	0	29·455	78·9	67·8		0·02	0·1		S.	9·0	Cum. : cir.-str. : very hazy and like thunder.
	5	0	29·375	68·8	66·8			……		Various.	10·0	Nimbi : cum. : rain : thunder storm.
	20	0	29·334	54·1	52·9	78·2		0·5			10·0	Scud.
	23	0	29·395	58·8	53·8	53·2	1·542	1·3	NW.	NW.	10·0	Loose cum. : hazy clouds.
Aug. 11	2	0	29·476	62·9	54·6		1·36	1·8	NW.	NNW : 0.	8·8	Id. : loose cir.-cum. : cir.
	5	0	29·587	63·7	53·7			2·0	NW by N.	NNW : 0.	5·0	Cumuli : mottled cirri.
	20	0	29·748	58·6	57·8	63·9		0·6	SW.	SW.	10·0	Scud.
	23	0	29·792	62·6	58·7	52·3	0·202	0·8	SW.	SW.	10·0	Id.
Aug. 12	2	0	29·815	65·9	61·3		0·15	0·8	SW.	SW.	9·8	Id. : sky to NE.
	5	0	29·850	63·3	61·0			0·8	SW.	SW.	10·0	Id.
	20	0	29·930	63·1	61·4	67·3		1·5	SW.	SW : 0.	9·5	Misty scud : matted, &c. cirri.
	23	0	30·003	67·0	63·0	58·0	0·003	1·5	SW.	SW.	9·0	Id. : id.
Aug. 13	2	0	30·043	68·1	62·3		0·00	1·8	WSW.	WSW.	5·0	Id. : varieties of cirri.
	5	0	30·050	66·1	61·7	69·1 58·9		1·0	WSW.	WSW.	8·5	Cumuli : id. : &c.
Aug. 14	20	0	30·050	58·8	57·5	70·1		0·3		SW.	9·0	Thin scud : cir.-cum. : pectinated cir.
	23	0	30·010	68·8	64·0	51·2	0·000	0·0		SW.	4·0	Cum. : scud : flame and hazy cirri.
Aug. 15	2	0	29·974	71·9	65·1		0·00	0·5		SW.	9·0	Cum : flame and linear cir. : like thunder.
	5	0	29·953	71·8	64·3			0·3		SW.	9·0	Cir.-scud. : piles of cum. : cir.-str. : cir.-haze. : cir.
	20	0	30·096	55·5	52·8	74·8		……		NE : 0.	4·0	Loose cum. : cir.-cum.
	23	0	30·097	59·0	53·6	53·7	0·000	0·5		ENE.	9·8	Id. : sky on NE. hor.
Aug. 16	2	0	30·079	62·5	56·0		0·00	0·5	SE.	SSE.	8·0	Id.
	5	0	30·047	61·8	56·7			0·3	SE.	SE.	9·9	Scud : id.
	20	0	29·921	57·8	55·8	65·6		0·0			10·0	Nearly homogeneous.
	23	0	29·898	64·9	60·9	55·5	0·000	0·3			10·0	Id., breaking.
Aug. 17	2	0	29·835	72·3	66·2		0·00	0·1		SW : 0.	1·0	Scud : cirri.
	5	0	29·766	77·5	69·5			0·3	SSE.		2·0	Cumuli : id.

See note, Aug. 6^{d}, 8^{d}, 9^{d}, and 10^{d}, page 93.
Aug. 11^{d} 1^{h}. 1·542 inch. of rain must have fallen in less than 15^{h}, probably in less than 12^{h}.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GUAGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
Aug. 17	20	0	29·734	63·3	61·3	……		……		SSW : 0.	7·0	Cum. : loose cir.-cum. : cir. : cir.-haze.
	23	0	29·739	73·2	67·7	57·0?	0·000	0·0		SSW.	5·0	Vertebrated cir.-cum.
Aug. 18	2	0	29·700	78·1	69·8		0·00	0·3		SSE.	6·0	Cum. : cir. : haze.
	5	0	29·664	81·3	68·5			0·3		SSW.	7·0	Scud : rocky cumuli : cir. : cir.-haze.
	20	0	29·570	62·0	60·6	82·3		0·0		SSE.	10·0	Loose cum. : haze : thunder, and during the night.
	23	0	29·543	73·5	67·3	59·7	0·000	1·3	SSW.		10·0	A few cum. : cir.-haze : cir.
Aug. 19	2	0	29·565	70·8	65·3		0·00	0·8	SSW.	SSW.	10·0	Cum. : large cir.-cum. : haze.
	5	0	29·520	67·8	63·0			0·0			10·0	Haze, &c. : nearly homogeneous.
	20	0	29·550	59·6	55·6	74·0		……		SSW.	2·8	Cum. : cirri.
	23	0	29·568	60·6	57·9	58·2	0·000	0·3		SW.	10·0	Scud : light drizzle.
Aug. 20	2	0	29·575	60·9	54·3		0·00	1·3	SSW.	SSW.	10·0	Id. : haze : stormy-like.
	5	0	29·554	61·7	57·8	64·2		2·0	SSW.	SSW.	10·0	Id. : cir.-str. : haze : slight drizzle.
						48·1						
Aug. 21	20	0	29·881	49·8	47·3	65·2		0·0		SSW : 0.	9·5	Mottled grey mass : loose cir.-cum.
	23	0	29·882	58·6	52·9	43·8	0·046	0·0		S.	9·2	Cir.-cum, &c. : more open than at 20h.
Aug. 22	2	0	29·872	65·9	57·8		0·02	0·0		S.	9·9	Heterogeneous mass.
	5	0	29·847	64·2	57·1			0·3		S.	10·0	Id., denser.
	20	0	29·716	58·1	56·0	67·6		0·3			1·0	Detached loose cum. : cirri.
	23	0	29·667	67·6	62·1	48·3	0·000	0·3		SSW.	1·0	Id. : id.
Aug. 23	2	0	29·606	73·7	65·0		0·00	0·1			8·0	Cumuli : woolly cir.-cum. : hazy on hor.
	5	0	29·540	72·8	63·3			0·3		SSW.	8·0	Patches of scud : cir.-cum. : cir.-str.
	20	0	29·483	55·5	53·5	75·9		0·4		SW.	10·0	Scud : light drizzle.
	23	0	29·541	54·6	50·8	52·3	0·040	0·3			10·0	Like buttermilk agitated : cir.-str. to N.
Aug. 24	2	0	29·582	57·6	52·9		0·01	0·3			10·0	As at 23h : light showers.
	5	0	29·606	59·8	54·3			0·0			9·9	Detached cum. : more broken.
	20	0	29·761	46·8	45·4	60 8		0·0			0·5	Cirri.
	23	0	29·774	58·8	53·9	36·7	0·000	0·8	NE.	ENE.	8·0	Loose cum. : cumuli.
Aug. 25	2	0	29·762	61·0	54·5		0·00	0·8		ENE.	4·0	Cumuli.
	5	0	29·757	59·1	53·6			1·0	NE.	ENE.	2·5	Loose cumuli : cirri.
	20	0	29·780	54·9	52·7	61·6		0·5	NNE.	NE : 0.	7·5	Scud : cir.-cum. : cirri.
	23	0	29·801	57·8	53·7	45·2	0·054	0·6	NNE.	NNE.	8·5	Loose cum. : cir.-cum.
Aug. 26	2	0	29·800	60·6	54·6		0·06	0·6	NNE.	NE : SSW.	5·5	Patches of scud. : cumuli.
	5	0	29 806	58·8	54·4			0·8	NE.	NE.	9·8	Loose cumuli : cirro-cum.
	20	0	29·861	55·6	53·4	61·5		0·3		NE.	10·0	Scud.
	23	0	29 864	59·0	54·8	54·3	0·000	0·3	NE.		8·0	
Aug. 27	2	0	29·849	63·9	57·7		0·00	0 8	NE.		5·0	Id. : cir.-cumuli.
	5	0	29·839	63·8	57·0	64·6		0·3	NNE.		5 0	
						52·6						

Aug. 17d. Index of max. thermometer shaken.
Aug. 18d 2h 50m. Thermometer in the sun 110°.
Aug. 25d—26d. Observatory wind-vane put up to-day; from it the directions of the wind are afterwards taken.
Aug. 26d and after, the max. and min. of temperature are from the pair of register thermometers A_1, of which, however, the maximum is a new thermometer, the old one having been broken in the carriage to Edinburgh, where it had been sent to obtain a new index.

Göttingen Mean Time of Observation.			BARO-METER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d	h.	m.	in.	°	°	°	in.	0—6.			0—10	
Aug. 28	20	0	29·828	56·5	55·8	64·9		0·0			10·0	Scud : light mist or drizzle.
	23	0	29·804	63·1	60·5	54·7	0·037	0·0		SSW.	9·0	Loose cumuli : sky in patches.
Aug. 29	2	0	29·766	70·0	64·4		0·00	0·1	SW by W.	SSW.	4·0	Cumuli.
	5	0	29·731	72·0	64·3			0·1	WSW.		1·0	Detached cumuli round hor.
	20	0	29·761	54·8	51·6	72·9		0·4	W by S.	WSW : 0.	9·8	Scud : cirro-str. to E. and N., &c.
Aug. 30	0	0	29·786	59·1	51·8	54·6	0·000	0·4	NW by N v.	N by W.	9·9	Cumuli 1½ : cir.-haze : stormy-like.
	2	0	29·794	59·0	49·9		0·00	0·5	NW by N.	NNW.	10·0	Cum. 2½ : id.
	5	0	29·797	57·9	49·5			0·3	NW by N.	W : SW.	8·5	Watery cum. : diffuse cir.-cum. : cir.-haze.
	20	0	29·890	47·4	44·9	60·8		0·1	W by S.		0·0	
	23	0	29·894	57·0	49·4	37·2	0·000	0·6	WNW.	WNW.	6·0	Detached cum. : cirri.
Aug. 31	2	0	29·867	61·1	52·3		0·00	0·5	SW by W v.	W by S : W by N : NW.	6·0 ?	Cum. : hills of cum. : cirri.
	5	0	29·855	58·9	55·7			0·6	SW by W.	SW.	9·0	Scud : cum. : chiefly cir.-haze.
	20	0	29·526	53·7	52·9	62·2		0·1	SW.	SSW : 0.	10·0	Scud, &c.
	23	0	29·507	60·1	58·9	48·1	0·114	0·5	SW.	SSW.	10·0	Id. : occasional showers.
Sept. 1	2	0	29·519	66·3	62·7		0·09	0·8	SW.	WSW.	9·8	Id. : loose cum. : cirri.
	5	0	29·547	65·7	62·6			0·8	SW v.	W by N.	10·0	Id. : cirrous haze.
	20	0	29·691	63·5	61·7	68·1		1·5	SW.	W.	10·0	Scud.
	23	0	29·711	64·2	61·8	60·4	0·044	1·5	SW.	WSW.	10·0	Id.
Sept. 2	2	0	29·751	64·9	62·2		0·03	1·5	SW by S.	WSW.	10·0	Id.
	5	0	29·759	64·1	61·7			2·5	SSW.	SW : WSW.	9·9	Id. : drops of rain.
	20	0	29·822	62·0	59·6	65·9		1·5	SW v.	W by S.	8·8	Thin scud : loose cir.-cum. : sky in zen.
	23	0	29·827	62·8	60·1	59·8	0·003	1·0	SW by W v.	WSW.	10·0	Scud.
Sept. 3	2	0	29·798	62·9	59·9		0·00	2·0	SW by W v.	WSW.	10·0	Id.
	5	0	29·770	61·0	59·2	66·3 42·1		1·5	SW.	WSW.	10·0	Id. : light rain.
Sept. 4	20	0	29·924	47·4	45·8	66·3		0·1	NW by W.	W by S : 0.	8·5	Cirri : cirrous haze.
	23	0	29·902	56·9	53·4	42·5	0·053	0·3	SW.	W by N ?	10·0	Scud : id. near hor.
Sept. 5	2	0	29·833	62·5	56·8		0·02	0·3	SW by W.	SW.	10·0	Thick scud.
	5	0	29·784	60·2	57·7			0·4	SW by S.	SSW.	10·0	Id., &c.
	20	0	29·647	54·4	51·2	64·2		0·3		W.	1·5	Scud : cirro-cumuli.
	23	0	29·653	59·0	53·5	48·8	0·136	0·8	W by S.	WNW.	5·0	Loose cumuli : scud.
Sept. 6	2	0	29·660	60·5	54·4		0·15	0·4	NW.	NW.	9·0	Id. : id.
	5	0	29·670	61·2	55·8			......		NW.	9·0	Cumuli : large cir.-cum.
	20	0	29·658	45·0	44·0	62·8		0·3	SW by W.		5·0 ?	Feather cirri.
	23	0	29·629	57·1	53·5	38·2	0·006	0·0		S.	9·8	Loose cum. : cir.-str. : cir.-haze on E. hor.
Sept. 7	2	0	29·561	61·6	56·1		0·00	0·0		SSE.	9·0	Id. : id. : id.
	5	0	29·473	62·8	56·9			0·5	SE.	S by E.	10·0	Cir.-str. : thick cir.-haze : stormy-like.

Aug. 30ᵈ 0ʰ. Observation made at this time by mistake instead of 29ᵈ 23ʰ.

Göttingen Mean Time of Observation.				Barometer Corrected.	Dry.	Wet.	Max. and Min.	Rain Gauges A. & B.	Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m.	in.	°	°	°	in.	0–6.			0–10.	
Sept.	7	20	0	29·218	55·3	54·5	66·1		0·0		WSW.	10·0	Scud : light rain.
		23	0	29·191	57·0	56·4	......	0·073	0·3	NNE.	ENE.	10·0	Id. : id.
Sept.	8	2	0	29·180	58·2	56·7		0·05	0·4	NNE.	NE.	10·0	Id. : id.
		5	0	29·172	59·3	55·1			0·3	N by E.	N by W.	7·0	Loose cum. : scud : cum : cir.
		20	0	29·126	52·7	51·6	60·7		0·0		S by W ?	10·0	Homogeneous scud : light drizzle.
		23	0	29·087	57·5	55·3	49·3	0·020	0·1	SSW.	SW by S.	10·0	Scud.
Sept.	9	2	0	29·049	63·3	57·8		0·02	0·6	SSW.	SSW.	9·0	Id. : cum. on hor. : cir.-cum. : cir. in sheets.
		5	0	29·035	62·2	56·2			0·5	SW by W.	SSW.	6·0	Id. : towering cum. : cir. : black to NW.
		20	0	29·114	51·4	49·7	66·0		0·0		NNW.	9·0	Thin scud : cir.-cum.
		23	0	29·163	58·7	54·1	45·4	0·041	0·3	NNW.	NW.	9·8	Scud : cum., &c. above.
Sept.	10	2	0	29·186	60·8	54·9		0·02	0·3	NW by N.	NW : NNW.	9·2	Scud : cum. : cirri.
		5	0	29·214	61·1	54·6	63·1		0·0		NW : N.	8·2	Id. : id. : cirro-cum.
							52·2						
Sept.	11	20	0	29·583	50·9	48·8	60·8		0·4	WNW.	N.	10·0	Scud : cir.-haze to S.
		23	0	29·641	57·6	52·0	48·0	0·117	0·3	NNW.	N.	9·8	Id. : cumuli rising to N.
Sept.	12	2	0	29·678	62·0	54·0		0·08	0·3	NNW.	NNW.	6·0	Cumuli : cir.-haze to SW.
		5	0	29·712	60·4	54·5			......		NNW.	1·5	Cum. to W. : pencils of cirri 75° long.
		20	0	29·886	50·5	49·5	63·6		0·0			10·0	Very thick, like buttermilk : cir.-cum., &c.
		23	0	29·905	57·0	53·7	44·9	0·006	0·4	SW.	SW.	10·0	Nearly homogeneous : patches of scud.
Sept.	13	2	0	29·899	61·1	56·8		0·00	0·8	SW by W.	N.	9·9	Diffuse cir.-cum.
		5	0	29·897	62·1	58·4			0·6	SW.	NNW : 0.	6·0	Id.
		20	0	29·981	58·0	56·8	63·6		0·0			9·9	Homogeneous scud ? breaking.
		23	0	29·998	63·4	60·1	56·1	0·001	0·1	WSW.		10·0	Id.
Sept.	14	2	0	29·997	67·7	63·2		0·00	0·0			9·9	Id.
		5	0	29·987	66·2	62·7			0·1			9·9	Id. : cum. on ESE. hor.
		20	0	29·959	54·0	52·8	70·6		0·0			9·5	Thick mist : large loose cir.-cum.
		23	0	29·935	63·3	58·9	51·4	0·000	0·3	S by E.	S.	6·5	Cumuli : id.
Sept.	15	2	0	29·883	65·9	59·3		0·00	0·4		SSE.	9·8	Loose edged cumuli.
		5	0	29·863	64·3	58·1			0·8	SSE.	SSE.	9·5	Id.
		20	0	29·808	57·8	55·6	70·6		0·1	SSW.	SW by S : 0.	10·0	Cir.-cum.-scud. : cir.-cum. : cir.
		23	0	29·798	64·7	59·6	53·0	0·000	0·8	SSW.	SW by S.	10·0	Scud : cum. : cir.-haze.
Sept.	16	2	0	29·763	65·7	61·0		0·00	0·4	WSW v.	SW by S.	9·9	Id. : id. : id.
		5	0	29·720	64·9	60·6			1·3	SSW ?	SSW.	7·0	Cum. : cir. : haze.
		20	0	29·411	58·4	55·6	68·5		2·5	SSE.	SSW.	10·0	Scud : cum. : cir.-cum. : cir.-haze.
		23	0	29·379	63·6	59·9	53·3	0·000	2·5	SSW.	S by W.	8·5	Scud : cum. : cir. : cir.-haze : stormy-like.
Sept.	17	2	0	29·370	61·8	58·1		0·00	1·8	SW by W.	SSW.	10·0	Id. : light rain.
		5	0	29·419	58·5	53·8	66·3		0·5	SSW.	W by S : S by W.	8·0	Scud : loose cum. : cir.-cum.
							43·0						
Sept.	18	20	0	29·344	49·8	48·6	62·6		0·0		NE by N.	10·0	Scud.
		23	0	29·315	52·0	50·0	41·3	0·047	0·0		NNW.	10·0	Id.
Sept.	19	2	0	29·298	55·1	51·1		0·02	0·0		NNW : WSW.	5·0	Loose cumuli.
		5	0	29·282	57·8	51·7			0·0		SSE.	3·5	Cumuli : loose cir.-cum.

Göttingen Mean Time of Observation.				Barometer Corrected.	Thermometers.			Rain Gauges A. & B.	Wind.		State of the Sky.		
					Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
Sept.	19	20	0	29·245	49·5	48·5	58·7		0·0		SSE.	3·0	Cum. : scud : cir.-cum. : cir. to NE.
		23	0	29·236	55·0	50·9	47·4	0·005	0·1		SSE.	2·0	Cum. on hor. : cirrous haze.
Sept.	20	2	0	29·218	59·6	51·4		0·00	0·1	SE.	S by E.	5·0	Loose edged cum. : cir.-haze.
		5	0	29·221	60·2	50·9			0·3	S by E.	SE.	1·5	Detached cum. : cir.
		20	0	29·312	43·4	42·8	61·8		0·0			10·0	Homogeneous mass : heavy mist.
		23	0	29·346	49·0	48·0	36·5	0·081	0·0		NE ?	9·5	Scud : nimbi ? smart shower.
Sept.	21	2	0	29·331	56·0	50·7		0·07	0·3	NE.	NE.	3·0	Cumuli.
		5	0	29·332	54·1	49·5			0·3	NE.	SSE : NW : 0.	8·0	Cumuli : loose cir.-cum.
		20	0	29·345	49·9	47·9	……		0·0		NE : SSE.	10·0	Two strata of scud : cir.-haze.
		23	0	29·344	54·0	48·6	43·7	0·007	0·5	N.		10·0	Cumuli on hor.,—breaking
Sept.	22	2	0	29·333	55·0	49·1		0·00	0·5	N.	N.	10·0	Scud, chiefly cirrous haze.
		5	0	29·297	52·9	48·5			0·3	N.		10·0	Id. : rain.
		20	0	29·269	55·9	53·0	56·7		2·3	NNE.	NNE.	9·9	Scud : occasionally drops of rain.
		23	0	29·289	57·4	53·7	42·7	0·265	2·5	NNE.	NNE.	9·8	Id. : loose cum.
Sept.	23	2	0	29·311	58·3	53·9		0·15	1·8	NE by N.	NE by N.	9·8	Id. : cum. : cirrous clouds.
		5	0	29·324	56·9	53·9			1·8	NE.	ENE.	3·0	Id. : id.
		20	0	29·332	49·6	49·2	58·3		0·0			10·0	Scud : rather heavy rain.
		23	0	29·362	49·0	48·8	48·5	1·638	0·0			10·0	Id. : heavy rain.
Sept.	24	2	0	29·361	53·8	52·5		1·54	0·6	NNE.	NNE.	9·9	Id. : breaking.
		5	0	29·377	55·0	52·7	56·3		0·4	NE by N.	NE by N.	10·0	Id. : large cir.-cum.
							50·0						
Sept.	25	20	0	29·881	49·2	48·4	54·4		0·3	NNE.	NE : 0.	9·8	Scud, &c.: light rain.
		23	0	29·930	50·8	49·6	49·7	……	0·6	NE by N.		10·0	Id. : Scotch mist.
Sept.	26	2	0	29·957	50·6	49·7		0·25	0·6	NE by E.		10·0	Id. : id.
		5	0	29·975	50·9	48·4			0·6		NE.	10·0	Id. : indefinable to N.
		20	0	30·010	47·2	46·2	52·3		0·0		NE.	8·5	Scud : loose cum. : sky on NW. hor.
		23	0	30·007	52·7	47·6	46·1	0·345	1·0	NE by N.	NE by N : ENE.	7·0	Loose cumuli.
Sept.	27	2	0	30·003	54·3	48·1		0·02	1·0		N by E : E.	9·5	Id. : sky in zen. and to E.
		5	0	30·006	52·6	48·6			0·5		NNE.	5·0	Scud : loose cumuli.
		20	0	30·116	46·4	43·5	55·1		0·5	N.	NNE.	10·0	Scud : breaking.
		23	0	30·141	48·5	44·4	45·1	0·010	1·0	NNE.	NNE.	10·0	Id. : light rain.
Sept.	28	2	0	30·143	50·3	45·0		0·00	2·0	NE by N.	NE.	9·5	Id. : sky in zen. and to N.
		5	0	30·151	49·7	45·6			1·5	NNE v.	NE by N.	3·5	Id. : cir.-cum.
		20	0	30·237	48·4	43·9	51·5		0·6	NNE.	ENE.	2·0	Loose cumuli.
		23	0	30·243	52·5	47·6	43·9	0·172	0·8	NNE.	E by N.	9·0	Scud : showers around.
Sept.	29	2	0	30·245	53·8	46·3		0·12	1·8	NE by N.	ENE.	2·5	Id.
		5	0	30·233	51·6	46·6			1·0		E by N : NE by E.	3·5	Id. : cumuli : part of a rainbow to NE.
		20	0	30·212	41·0	40·4	54·6		0·0		ENE.	2·0	Cirro-cumuli.
		23	0	30·224	52·7	47·4	52·8		0·5	NE by E.	ENE.	3·0	Cumuli.
Sept.	30	2	0	30·183	53·7	47·0		0·010	1·0	NE.	ENE.	3·5	Loose cumuli.
		5	0	30·159	51·6	45·7		0·00	0·6	NE.	ENE.	4·0	Id. : cumuli.

Sept. 29d 0h. Maximum corrected height of barometer 30·250.

Göttingen Mean Time of Observation.			Barometer. Corrected.	Thermometers.			Rain Gauges A. & B.	Wind.		State of the Sky.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0–6.			0–10.	
Sept. 30	20	0	30·140	39·5	38·5	55·6		0·0		NNW : E.	3·0	Cir.-str. : cir.-cum. : flame cir.
	23	0	30·130	50·4	46·6	37·0	0·000	0·0		NW.	8·0	Cumuli : cirro-cumuli.
Oct. 1	2	0	30·113	52·9	47·9		0·00	0·0		W by S : N : NW.	9·8	Scud : two strata of loose cum.
	5	0	30·101	53·4	48·6	55·7		0·1		N.	10·0	Cumuli.
						48·4						
Oct. 2	20	0	30·019	44·5	41·7	59·6		0·3	N.	NE.	9·8	Thin scud, &c. : sky to N.
	23	0	30·023	47·8	42·0	44·1	0·006	0·5	NNE.	NE.	9·9	Scud : loose cumuli : sky to S.
Oct. 3	2	0	30·005	48·7	42·7		0·00	0·5	NNE.	NNE.	9·9	Id. : id. : cir.-haze.
	5	0	29·972	47·0	41·8			0·1		NNW.	9·2	Id. : cumuli : cir. to S.
	20	0	29·988	31·6	31·0	49·9		0·0			0·2	Cirri : hoar frost.
	23	0	29·994	42·8	39·5	27·7	0·000	0·0		WNW ?	0·5	Detached cumuli.
Oct. 4	2	0	29·963	48·8	42·7		0·00	0·4		WNW.	0·2	Patches of scud : cum. : cir.
	5	0	29·932	49·3	43·4			0·3			0·1	Patches of cirri : hazy on E. hor.
	20	0	29·983	45·7	43·5	49·7		0·1		NNW.	9·8	Scud : large cir.-cum.
	23	0	29·996	53·7	47·6	29·2	0·000	0·6	NNW.	N.	7·5	Cumuli : id.
Oct. 5	2	0	30·005	55·9	48·6		0·00	0·6	NNW.	N.	10·0	Hazy scud.
	5	0	30·017	54·6	49·2			0·5	NNW.	N.	9·9	Scud : loose cumuli : rain to ENE.
	20	0	30·087	45·5	43·5	56·6		0·0		N.	5·0 ?	Cirro-strati : cirri.
	23	0	30·090	52·6	46·4	45·1	0·000	0·4	NNW.	NW : N.	8·0 ?	Detached cumuli : nests of cir. : flame cir.
Oct. 6	2	0	30·066	54·5	47·9		0·00	0·3	NW by N.	W by N : NW ?	7·5	Scud : cir.-edged cum. : cir. : gusty.
	5	0	30·045	52·8	48·7			0·1	WNW.	WNW : N.	10·0	Scud : cir.-cum. : cir.-haze.
	20	0	30·037	50·7	47·8	……		0·8	W by S.	WNW.	10·0	Scud : cir. : cir.-haze.
	23	0	30·064	54·9	50·6	……	0·000	0·4	WSW.	NW by W : N.	8·5	Patches of scud : varieties of cirrus.
Oct. 7	2	0	30·065	56·5	50·6		0·00	0·1		NNW.	8·0	Scud : id.
	5	0	30·076	56·5	50·6			0·1	N by E ?	NNW.	7·0	Nests of cirri : woolly, linear, &c., cirri.
	20	0	30·280	39·1	38·2	59·0		0·0		N ?	10·0	Scud.
	23	0	30·304	47·6	45·6	31·0	0·000	0·0		N.	9·8	Large loose cir.-cum.,—breaking.
Oct. 8	2	0	30·296	55·2	49·7		0·00	0·0		NW by W.	2·0	Detached patches of scud : varieties of cir.
	5	5	30·276	53·7	50·3	55·2		0·0			3·0	Linear, mottled, curled, and other cirri.
						45·1						
Oct. 9	20	0	30·151	50·2	47·7	56·4		1·0	WSW.	W by S.	10·0	Scud : cirrous clouds above.
	23	0	30·149	53·7	48·6	55·0	0·009	1·3	SW by W.	W by S.	8·0 ?	Id. : linear, &c., cirri.
Oct. 10	2	0	30·102	55.5	49·5		0·00	1·3	SW.		8·0 ?	Patches of scud : varieties of cirri.
	5	0	30·094	53·1	48·6			0·8	SW by S.		8·0 ?	Id. : id.
	20	0	30·117	54·7	51·9	56·2		0·4	W.	WNW.	9·2	Scud.
	23	0	30·122	59·4	53·9	48·1	0·000	0·1	SW by W.		1·5	Patches of scud : linear cir. : cir.-haze.
Oct. 11	2	0	30·125	62·1	54·5		0·00	0·3	NW ?		1·5	Cum. to E. : id. : id.
	5	0	30·138	59·8	53·2			0·5	N by W.	NW ? : NNW ?	6·0	Loose cum. 1½ : woolly cir.-cum.

Oct. 8^{d} 3^{h}. Maximum height of barometer probably at this time, reading corrected 30·302.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	0—6.			0—10.	
Oct. 11	20	0	30·196	35·8	35·4	62·6		0·0			4·0	Linear and waved cir. to E. : hoar frost.
	23	0	30·191	46·8	45·1	33·7	0·004	0·0		NW ?	3·0	Cumuli : varieties of cirri.
Oct. 12	2	0	30·142	53·7	49·8		0·00	0·1			4·0	Linear, waved, &c., cirri.
	5	0	30·118	54·0	50·6			0·0			6·0	Feathery, woolly, &c., cirri.
	20	0	30·070	31·6	31·6	54·8		0·0			0·2	Linear cirri : hoar frost.
	23	0	30·055	43·8	42·6	29·8	0·000	0·0			3·0	Linear, mottled, &c., cirri.
Oct. 13	2	0	29·993	53·7	49·6		0·00	0·8	SW.		8·0	Varieties of cirri.
	5	0	29·962	53·5	49·4			0·8	SW by S.		8·5	Id., chiefly linear.
	20	0	29·930	48·3	47·1	54·8		0·0		WNW.	9·8	Scud : light rain : sky to NE.
	23	0	29·937	54·4	49·9	……	0·010	0·6	WSW.	WNW.	6·5	Id. : linear cirri.
Oct. 14	2	0	29·915	57·8	50·5		0·00	0·4	W by S.	WSW.	4·0	Loose edged cum. : woolly and lin. cir.
	5	0	29·917	54·0	49·9			0·5	WSW.	WSW.	9·8	Cir.-cum.-scud : cir.-str. : cir.-haze.
	20	0	29·984	50·0	47·2	56·0		0·3	W by S.	W by N.	9·5	Cirro-cumulous-scud.
	23	0	30·001	54·6	50·3	46·2	0·000	0·1	W.	WNW.	0·8	Patches of scud.
Oct. 15	2	0	29·989	58·8	53·3		0·00	0·5	WSW.	NW : WSW.	2·5	Loose edged cumuli : cumuli.
	5	0	30·000	54·8	50·3	58·9 35·9		0·3	WSW.	W by S.	3·0	Loose cum. and cir.-cum.
Oct. 16	20	0	29·810	47·4	44·6	56·0		0·1		W.	10·0	Nearly homogeneous scud ?
	23	0	29·732	49·6	46·3	46·2	0·000	0·4	SW by S.	W.	10·0	Id.
Oct. 17	2	0	29·631	49·9	46·9		0·00	0·4	SW.	W.	10·0	Scud : cumuli to N. : more broken.
	5	0	29·503	48·9	45·8			0·1	SW by S.	W : NW.	7·5	Scud to S. : loose cir.-cum. to N. : rain to E.
	20	0	29·087	37·5	36·5	50·8		0·0			3·0	Scud on hor. : feathery cirri.
	23	0	29·079	43·9	39·9	36·2	0·000	0·6	W by S.	NW by W.	1·5	Loose cum. : cir. : cir.-haze.
Oct. 18	2	0	29·050	47·8	41·2		0·00	1·0	NW by N.	NW.	1·5	Id. : id.
	5	0	29·061	39·5	38·0			2·0	NW by N.		10·0	Hazy clouds : dark to W. : rain.
	20	0	29·160	36·8	34·5	48·3		0·8	N by W.	N.	5·0	Thin scud : cum. : cir.-cum. : clearing.
	23	0	29·177	40·0	34·9	31·3	0·048	3·0	N.	N.	3·0	Loose cumuli.
Oct. 19	2	0	29·198	42·1	36·8		0·00	2·5	N by W.	N.	6·0	Id.
	5	0	29·219	39·8	35·1			0·8	NNW.		2·0	Id. round hor.
	20	0	29·340	29·7	28·3	43·2		0·0			1·0	Heavy cum. on hor.
	23	0	29·377	39·5	35·3	24·2	0·000	0·1	W by S.	N by W : W.	2·0	Towering cum. on E. hor. : loose cum. and cir.-cum.
Oct. 20	2	0	29·397	41·7	35·5		0·00	0·8	NW by N.	NW.	2·0	Cumuli.
	5	0	29·432	39·5	34·4			0·3	NNW.		2·0	Id. on horizon.
	20	0	29·697	31·7	29·8	42·1		0·3			0·5	Cumuli on horizon as at 5ʰ.
	23	0	29·739	40·4	35·3	30·4	0·000	1·0	NW.	NW.	0·2	Id. : linear cir. to NW.
Oct. 21	2	0	29·735	42·4	36·3		0·00	1·0		NW.	2·0	Id. : loose cumuli.
	5	0	29·725	41·2	36·7			0·1			9·5	Id. : scud : woolly cirri.

Oct. 21—22. Anemometer fitted up. The indications are in pounds of pressure on the square foot of surface.

Göttingen Mean Time of Observation.				Barometer Corrected.	Thermometers.			Rain Gauges A. & B.	Anemometer.			State of the Sky.		
					Dry.	Wet.	Max. and Min.		Pressure. Max.	Pressure. Pres.	Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
	d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0—10	
Oct.	21	20	0	28·963	41·8	40·8	43·1		3·3	1·5	SW by S.		10·0	Rather heavy rain : scud.
		23	0	28·835	45·8	42·5	35·0	0·369	2·0	0·8	W by S.	W by N : WSW.	6·0	Patches of scud : loose cir.-cum.
Oct.	22	2	0	28·731	47·6	43·1		0·30	2·5	1·5	WSW.	W.	7·0	Loose cum. : woolly, linear, &c., cir. : cir.-haze.
		5	0	28·631	44·8	41·0	48·4		2·5	0·5	SW.	W.	9·8	Scud : hazy clouds : stormy-like.
							38·4							
Oct.	23	20	0	29·080	39·6	36·5	48·8		6·3	1·3	NNW.	N.	9·8	Scud : hazy above ?
		23	0	29·120	40·7	35·9	38·9	0·565	3·3	3·3	NNW.		2·0	Id. : cir.-strati.
Oct.	24	2	0	29·141	42·2	35·7		0·50	4·5	2·8	NNW.	NNW.	2·0	Id., chiefly on horizon.
		5	0	29·157	38·8	34·6			2·8	0·5	NW by N.		1·0	Cumuli on hor. : linear cir. to W.
		20	0	29·237	28·6	27·2	42·3		0·8	0·3	SSW.		1·5	Cumuli on horizon : linear cir. to S.
		23	0	29·236	33·9	31·8	27·0	0·000	0·5	0·0			10·0	Clouds like ragged curtains : snow to S.
Oct.	25	2	0	29·139	36·0	32·7		0·00	0·8	0·5	ESE.		10·0	Nearly as at 23^h : snow on Cheviot : snow at 3^h.
		5	0	28·987	35·5	34·5			1·0	0·8	SE by S.	SSE.	10·0	Id. : scud, &c. : drops of rain.
		20	0	28·818	30·6	30·7	37·1		4·8	0·8	SW.	WSW.	7·5	Loose cum. : cir.-cum. : snow on the ground.
		23	0	28·808	33·5	32·5	27 8	0·190	1·5	0·8	SW by S.		10·0	Snowing.
Oct.	26	2	0	28·744	37·4	35·6		0·03	1·8	1·3	SW by S.	W by S.	10·0	Scud : cirrous haze to S. : sleet.
		5	0	28·778	42·8	39·3			2·5	1·8	WSW.	WNW.	8·0	Id. : id.
		20	0	29·123	39·5	37·2	43·0		3·0	0·5	SW by W.	W ? N	7·0 ?	Scud : loose cir.-cum. : cirri, &c.
		23	0	29·106	43·0	39·2	39·9	0·052	2·8	2·3	W by N. v.	NNW : WNW.	9·5	Id. : woolly, &c. cirri : stormy-like.
Oct.	27	2	0	29·135	46·9	40·5		0·07	5·8	2·8	NW by W.	NW ?	9·9	Id. : id. : drops of rain.
		5	0	29·169	43·8	39·5			4·3	2·0	NW by N.	NW by W.	10·0	Id. : id. : light rain.
		20	0	29·362	41·7	38·9	47·5		3·8	0·8	NW by N.	NW ?	6·5	Scud : cirri, &c., indescribable.
		23	0	29·372	44·4	40·9	38·8	0·061	2·0	2·0	NW by N.	NNW.	3·0	Id. : cum. : varieties of cirri.
Oct.	28	2	0	29·383	45·8	41·7		0·03	2·3	1·0	N.	N.	8·0	Id. : id. : id.
		5	0	29·407	42·7	39·5			1·5	0·5	NNW.	N.	10·0	Id. : id. : id.
		20	0	29·647	35·7	33·4	46·4		2·0	0·3	NW.	NE ?	2·0	Loose cirro-cumuli.
		23	0	29·682	40·9	37·1	33·9	0·000	0·8	0·5	NNW.		1·0	Cirro strati : linear cirri.
Oct.	29	2	0	29·677	44·9	38·8		0·00	0·5	0·3	NNW.	NNW ?	7·0	Patches of cum., but chiefly cirri.
		5	0	29·692	40·0	36·9	47·2 ?		0·3	0·0		SW.	9·0	Cir.-cum.-scud. : cir. : cir.-haze : cir.-str.
							31 7							
Oct.	30	20	0	29·899	46·9	44·2	53·8		2·0	0·0			10·0	Large loose cirro-cumuli.
		23	0	29·909	50·9	47·4	45·3	0·000	1·3	0·8	SW by W.	W by S.	10·0	Scud : loose cum. : cir.-cum. : cir.-haze.
Oct.	31	2	0	29·899	49·8	47·6		0·00	1·3	0·5	SW by S.	W.	10·0	Scud : rippled-like cir.-clouds, &c.
		5	0	29·881	49·6	46·6			1·0	1·0	WSW.	W : NW ?	10·0	Id. : var. of cir. : cum. : clouds of various colours.
		20	0	29·929	48·4	46·6	53·3		2·8	0·3	SW by W.	WSW : N by W : W.	7·0	Smoky scud : scud : varieties of cir.
		23	0	29·962	54·0	50·7	47·2	0·005	0·5	0·3	WSW.	WNW.	6·5	Loose cir.-cum. : cir.-str. : id.
Nov.	1	2	0	29·960	56·9	53·0		0·00	0·3	0·3	WSW ?	NNW.	6·0	Id. : id. : cir.-haze.
		5	0	29·953	55·9	53·0			0·0	0·0		N by E.	9·0	Id.

Oct. 25^d 9^h. Maximum wind 2·5 lbs.
Oct. 31^d 9^h. Maximum wind 2·8 lbs.

Göttingen Mean Time of Observation.			BARO-METER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	ANEMOMETER.			STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Pressure.		Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
								Max.	Pres.				
d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0–10.	
Nov. 1	20	0	29·984	47·4	46·8	57·6		0·3	0·3	NE.	ENE.	10·0	Thin scud : cirri.
	23	0	29·988	48·3	46·3	46·0	0·000	0·3	0·0		ESE.	10·0	Scud.
Nov. 2	2	0	29·968	48·4	45·3		0·00	0·3	0·1		SE by E.	9·7	Id. : sky on ESE. hor.
	5	0	29·955	45·5	42·7			0·3	0·3	E by S.	ESE.	10·0	Id. : cirri.
	20	0	29·897	42·5	40·1	49·0		0·3	0·0		E.	10·0	Scud.
	23	0	29·900	44·9	41·5	41·2	0·000	0·3	0·0		E.	6·5	Cum. : large loose cir.-cum. : drops of rain.
Nov. 3	2	0	29·899	47·5	41·7		0·00	1·0	0·5	E by N.	E by N.	7·5	Loose cumuli.
	5	0	29·916	44·1	40·4			1·0	0·3	NE by E.	E.	3·0	Scud : sky quite gray : showers around.
	20	0	30·066	38·5	35·9	48·5		1·3	0·0		ENE.	6·0	Cir.-cum.-scud : cum. : nimbi.
	23	0	30·121	40·2	33·2	36·7	0·078	0·5	0·0		ENE.	2·0	Patches of scud : piles of cum. : nimbi : showers.
Nov. 4	2	0	30·150	41·8	38·9		0·05	1·3	0·5	NE by E.	ENE.	3·5	Piles of cum. and nimbi : loose cir.-cum : showers of hail and rain.
	5	0	30·177	40·5	38·7			3·0	0·5	NE by E.	E.	7·5	Masses of loose cum. and nimbi : showers.
	20	0	30·225	40·5	38·3	44·2		1·0	0·5	N by E.	NNE.	9·5	Scud : loose cir.-cum. : fine cir.-cum. : shower to N.
	23	0	30·226	42·4	39·8	32·0	0·040	1·5	0·5	N by E.	NE.	7·0	Nimbi, &c. : showers : rainbow.
Nov. 5	2	0	30·177	43·5	41·3		0·02	2·3	1·0	N by E.	NNE.	9·5	Scud and nimbi : cir.-cum. : showers.
	5	0	30·161	42·8	40·4	45·1		2·8	0·5	NNE.	NE by N.	9·0	Scud, cum., and nimbi : showers.
						36·8							
Nov. 6	20	0	30·120	39·4	37·5	45·8		1·0	0·5	N by W.	NNE.	9·7	Cir.-cum.-scud. : rain to S ?
	23	0	30·108	41·9	39·3	37·7		0·5	0·3	NNW.	NNE.	9·7	Id.
Nov. 7	2	0	30·085	42·9	38·6		0·042	0·5	0·3			10·0	Id., thicker.
	5	0	30·047	40·5	37·5		0·12	0·3	0·0		SSW.	8·2	Id. : snow on Cheviot.
	20	0	29·814	39·5	38·0	44·2		1·0	0·5	SW by S.	WNW.	8·0 ?	Loose cirro-cum. : cir.-str., &c.
	23	0	29·781	43·9	42·0	35·8		0·8	0·5	SW by S.		9·5	Cir.-cum. : cir.-haze, &c.
Nov. 8	2	0	29·716	46·8	43·1		0·000	1·0	0·5	WSW.	WSW : NNE.	7·0	Cumuli : cirri : cir.-haze.
	5	0	29·635	44·8	41·8		0·00	1·3	1·0	SW by S.	WSW.	5·0	Scud : cum. : cir.-str. : hazy.
	20	0	29·064	44·1	42·5	47·9		8·8	4·5	SW by S.	SW.	10·0	Light rain : scud ?
	23	0	29·007	48·6	46·8	38·5		5·3	3·0	SW by S.	SW.	10·0	Id. : id.
Nov. 9	2	0	28·985	50·2	48·6		0·117	4·8	1·8	SW by S.	SW.	10·0	Id. : id.
	5	0	29·018	48·4	44·6		0·25	2·8	1·0	SW by S.	SW.	9·5	Scud : hazy.
	20	0	29·344	33·6	32·9	51·1		0·8	0·0			0·5	Linear cirri : hoar frost.
	23	0	29·393	34·1	33·6	31·2		0·3	0·0		W by S.	3·5	Cirro-cumuli : linear cirri.
Nov. 10	2	0	29·382	41·2	38·7		0·005	0·0	0·0		SW.	10·0	Scud : cirrous haze.
	5	0	29·362	39·7	34·5		0·00	0·5	0·3	NE.		10·0	Thick cirrous haze.
	20	0	28·938	42·5	41·7	43·4		2·3	0·0			10·0	Very thick and dark : light rain.
	23	0	28·886	42·0	40·9	31·4		0·5	0·3	ESE.	SE by E.	10·0	Scud.
Nov. 11	2	0	28·800	42·8	41·8		0·560	0·5	0·0		SE by E.	10·0	Id., breaking : light shower.
	5	0	28·738	42·8	41·7		0·45	0·5	0·0	SE by E.		10·0	Nearly homogeneous : slightly foggy.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.			Rain Guages A. & B.	Anemometer.			State of the Sky.		
				Dry.	Wet.	Max. and Min.		Pressure.		Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
								Max.	Pres.				
d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0—10.	
Nov. 11	20	0	28·701	40·7	40·2	43·4		0·0	0·0		WNW.	10·0	Scud ? light mist.
	23	0	28·762	43·8	42·7	39·6	0·005	0·0	[illegible]			10·0	Cir.-cumulous-scud ?
Nov. 12	2	0	28·794	49·6	47·2		0·01	0·8	0·5	SW by W.	W.	9·7	Scud : cir.-str. : cir.-cum. : cir.-haze.
	5	0	28·854	47·6	46·2	50·0 39·0		1·3	0·3	SW.	W.	10·0	Id. : cir.-cum.
Nov. 13	20	0	29·483	35·6	33·9	46·7		1·8	0·0		WNW.	6·0	Cum. to NE. : loose cir.-cum. : cir.-haze.
	23	0	29·579	37·3	34·2	34·2	0·118	0·3	0·0		WNW.	3·5	Id. : id. : snow on Cheviot.
Nov. 14	2	0	29·618	38·8	34·3		0·11	0·5	0·5	N.		0·5	Id. E. : linear cirri.
	5	0	29·650	33·2	31·8			0·5	0·0			3·0	Id. id. : id. : lunar corona.
	20	0	29·650	23·5	23·5 ?	39·1		0·3	0·0		ENE ? 0.	2·5	Scud : cirro-cumuli.
	23	0	29·674	30·1	29·7 ?	21·3	0·000	0·0	0·0		ENE : W.	4·0	Id. : id. : snowing to N. and E.
Nov. 15	2	0	29·653	37·8	33·4		0·00	0·3	0·5	NNE.	ENE : W.	6·5	Id. : cumuli : var. of cirri : mealy snow since 23^h.
	5	0	29·664	36·8	35·1			1·0	0·0		ENE : WSW ?	10·0	Id. : varieties of cirri.
	20	0	29·768	37·2	34·8	38·4		1·3	0·3	NE by E.	ENE.	10·0	Scud.
	23	0	29·813	38·3	34·5	35·0	0·025	0·8	0·5	NE.	ENE.	9·7	Id. : cirri : cir.-haze.
Nov. 16	2	0	29·839	39·1	34·3		0·00	3·3	1·3	NE by E.	ENE.	9·5	Id. : id. : id.
	5	0	29·883	38·4	33·3			1·8	0·5	NE by E.	ENE.	10·0	Id. : id. : id.
	20	0	30·159	35·8	34·4	39·3		1·3	0·0			10·0	Indefinable mass.
	23	0	30·218	38·5	36·4	34·9	0·000	0·0	0·0		E.	9·9	Id., breaking.
Nov. 17	2	0	30·234	42·5	37·5		0·00	0·0	0·0		ESE : N ?	9·7	Loose cumuli : cirri.
	5	0	30·249	40·2	36·1			0·3	0·0			10·0	As at 23^h.
	20	0	30·190	37·7	35·1	43·0		0·8	0·5	SSW.	WNW.	7·0	Cir.-cum. : cir.-str. : cir.-haze.
	23	0	30·194	40·5	37·5	34·7	0·000	1·8	0·5	SW by W.	WSW.	9·0	Scud : cir.-cum. : cir. : cir.-haze.
Nov. 18	2	0	30·170	43·1	40·1		0·00	1·0	0·8	SW by W.	WSW : NW.	9·0	Scud 3 : mottled cir. : cir.-haze.
	5	0	30·155	41·3	39·3			1·5	0·0		WSW.	9·7	Scud : cir.-haze.
	20	0	29·682	33·7	33·6	43·3		0·3	0·0			10·0	Thick mist : sprinkling of snow fallen.
	23	0	29·613	36·9	36·5	31·4	0·203	0·0	0·0			10·0	Hazy scud.
Nov. 19	2	0	29·530	48·8	47·4		0·18	1·0	0·5	SW by S.	SW : WNW.	2·5	Loose cumuli : mottled cirri, &c.
	5	0	29·492	49·3	47·3	50·5 39·5		1·0	0·3	SW by W.		9·9	Heavy black scud and cum. : wild sky.
Nov. 20	20	0	29·704	33·2	32·5	42·2		1·3	0·3	NNW.	NNE.	3·0	Scud : towering cum. to NE. : clearing.
	23	0	29·733	34·7	32·8	30·8	0·047	0·5	0·3	NNW.	NNE.	3·0	Loose cum. : cum. : cir.-haze : rain to SE.
Nov. 21	2	0	29·695	36·5	34·4		0·02	0·5	0·3	NNW.		5·0 ?	Towering cum. on E. hor., but chiefly cir.-haze.
	5	0	29·672	34·3	32·8			0·3	0·0		NE ?	10·0	Scud, and as at 2^h.
	20	0	29·232	33·1	32·6	.7·3		0·3	0·0			10·0	Light fall of snow.
	23	0	29·164	34·6	33·6	34·1	0·070	0·3	0·3	SSE.	SSE.	10·0	Scud : cir. haze : flakes of snow.
Nov. 22	2	0	29·091	35·3	33·6		0·02	0·5	0·3	S by E.	SSW.	10·0	Id. : id. : id.
	5	0	29·054	34·3	33·8			0·3	0·0			10·0	Homogeneous gray : id.

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS. Dry.	THERMOMETERS. Wet.	THERMOMETERS. Max. and Min.	RAIN GAUGES A. & B.	ANEMOMETER. Pressure. Max.	ANEMOMETER. Pressure. Pres.	ANEMOMETER. Direction of Wind.	STATE OF THE SKY. Clouds moving from	STATE OF THE SKY. Quantity of Clouds.	STATE OF THE SKY. Species of Clouds, &c.
d. h. m.	in.	°	°	°	in.	lbs.	lbs.			0—10	
Nov. 22 20 0	29·078	33·4	32·3	35·9		0·5	0·3	WSW.	WNW.	9·0	Scud : cir.-clouds : sky to S.
23 0	29·080	35·2	33·3	31·2	0·028	0·8	0·3	SW.		1·0	Cir.-strati on SE. hor. : cirri to NE.
Nov. 23 2 0	29·054	38·5	36·1		0·03	0·5	0·3	WSW.	W by N.	1·0	Cumuli : cirri.
5 0	29·044	34·9	33·8			0·3	0·0		WNW.	2·5	Scud : cirro-strati to NE.
20 0	28·701	36·5	37·5	38·5		0·3	0·0		ESE.	10·0	Scud : cirrous haze : light rain.
23 0	28·663	39·7	38·5	23·5	0·153	0·5	0·3	ESE.	ESE.	10·0	Id. : id. : id.
Nov. 24 2 0	28·600	41·4	40·0		0·12	1·0	0·5	E.	ESE.	10·0	Id. : id. : id.
5 0	28·562	40·5	39·6			1·3	0·5	E by N.	ESE.	10·0	Id.
20 0	28·553	42·3	40·9	42·1		1·0	0·5	ENE.	SE ?	10·0	Scud : cirrous clouds : breaking.
23 0	28·587	43·4	41·8	38·3	0·007	0·5	0·5	ESE ?	SE.	9·7	Scud : cum. : cir.-str. : sky to SE.
Nov. 25 2 0	28·600	43·2	41·3		0·00	0·5	0·0		SE by E.	9·7	Scud : haze above : sky to N.
5 0	28·607	43·0	41·3			1·0	0·0	ESE.		10·0	
20 0	28·675	37·4	36·5	44·1		0·0	0·0		SE by E.	9·9	Scud : hazy above : red to E. : rain lately.
23 0	28·700	39·0	38·5	35·1	0·152	0·0	0·0			8·0	Scud ? clearing off.
Nov. 26 2 0	28·710	40·2	39·5		0·12	0·0	0·0			10·0	Hazy.
5 0	28·731	39·9	39·3	41·1 35·5		0·0	0·0			10·0	Dense scud.
Nov. 27 20 0	28·696	44·8	42·8			2·0	1·5	ESE.	SE.	10·0	Scud : light rain.
23 0	28·614	45·3	44·0		0·171	1·8	0·8	SE by S.	SSE.	9·9	Id. : cir.-clouds : light rain.
Nov. 28 2 0	28·565	46·8	45·6		0·11	1·0	0·3	SE.	SSE.	10·0	Id. : id. : id.
5 0	28·559	49·0	47·6			2·3	1·3	SSE.	S.	10·0	Id. : id.
20 0	28·955	41·6	40·3	49·2		1·8	0·5	SSW.	SW.	6·0	Scud : loose cumuli.
23 0	29·019	44·1	42·1	33·3	0·025	1·3	0·5	S.	SW.	7·0	Id. : id. : sky to E.
Nov. 29 2 0	29·068	47·0	43·4		0·01	1·8	0·8	SSW.	SW.	8·5	Id. : heavy cum. : cir. clouds : rain.
5 0	29·118	42·8	40·5			1·8	0·5	S by W.	SW.	6·0	Id. : sky hazy.
20 0	29·330	37·8	37·4	48·2		1·3	0·0		SW.	4·0	Scud : nimbi : cum.
23 0	………	……	……	36·9 ?		……	……			……	
Dec. 3 2 0	………	……	……							……	
5 0	29·977	47·1	44·6	55·9 32·1		9·0	0·3	SW.	W by S.	1·5	Scud.
Dec. 4 20 0	29·830	49·7	47·1	50·5		6·0	2·0	SW.	W by S.	10·0	Scud : clouds breaking.
23 0	29·879	49·6	48·4	46·6	0·101	2·5	1·3	SW by W.	W by S : SW.	7·5	Id. : mottled cirri.
Dec. 5 2 0	29·904	50·1	48·6		0·00	1·3	0·8	SW.	WSW.	9·9	Id.
5 0	29·903	48·9	47·6			0·8	0·3	SW.	WSW.	9·9	Id.
20 0	29·951	44·8	44·4	50·8		0·8	0·0			10·0	Foggy : rain lately.
23 0	29·982	45·6	45·2	43·2	0·258	0·0	0·0			10·0	Thick fog : clearing off.
Dec. 6 2 0	29·959	47·9	46·5		0·22	0·0	0·0			10·0	Id. : id.
5 0	29·941	44·3	44·2			0·0	0·0		E ?	7·0	Scud : flocculent cir.-cum. : mists rising.

Nov. 24^{d} 20^{h}. The mercury, when the maximum temperature was read, had attained the index, but the quantity registered cannot be far from the truth.

Nov. 27^{d} 20^{h}. Maximum and minimum thermometers omitted to be read.

Nov. 28^{d} 20^{h}. It is doubtful whether this be the minimum of 27^{d} or 28^{d}, as the instrument was probably not set on 27^{d}.

Dec. 3^{d} 5^{h}. The maximum and minimum read at 5^{h} are the max. and min. since Nov. 28^{d} 20^{h}.

Nov. 28d 20h. It is doubtful whether this be the minimum of 27d or 28d, as the instrument was probably not set on 27d.
Dec. 3d 5h. The maximum and minimum read at 5h are the max. and min. since Nov. 28d 20h.

Göttingen Mean Time of Observation.			Barometer Corrected.	THERMOMETERS.			Rain Gauges A. & B.	ANEMOMETER.			STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Pressure. Max.	Pressure. Pres.	Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0—10.	
Dec. 6	20	0	29·957	45·4	43·6	47·5		0·8	0·3	SW by S.		10·0	Homogeneous.
	23	0	29·987	45·6	43·5	42·4	0·017	1·0	0·5	SW by S.	SW.	9·9	Scud : clouds breaking.
Dec. 7	2	0	29·973	46·4	44·1		0·01	1·5	0·3		SW.	9·5	Id. : loose cumuli : cir. : cir.-haze.
	5	0	29·968	44·7	43 1			1·8	0·5	SW by S.	SW.	8·0	Stratous scud : cir.-cum. clouds.
	20	0	30·091	45·8	44·3	47·0		3·5	0·5	SW by W.	WSW ?	9·5	Scud : cirrous clouds.
	23	0	30·127	47·0	45·7	44·0	0·000	0·8	1·0	SW by S.	W.	9·5	Cirro-cumulous scud.
Dec. 8	2	0	30·146	48·4	46·6		0·00	0·8	0·3	SW by W.	W.	10·0	Id.
	5	0	30·176	47·5	46·4			0·5	0·0		W.	10·0	Id.
	20	0	30·238	43·2	42·5	48·5		0·3	0·0			10·0	Homogeneous gray.
	23	0	30·263	42·7	42·7	42·5	0·000	0·0	0·0			10·0	Scotch mist.
Dec. 9	2	0	30·224	44·9	44·3		0·00	0·0	0·0		S.	9·9	Id. : scud : cum. : breaking.
	5	0	30·204	44·3	43·7			0·0	0·0		SSE ?	10·0	Id. : id. : id.
	20	0	30·023	41·2	40·8	45·4		0·3	0·0			10·0	Thick mist.
	23	0	29·987	41·5	41·1	40·2	0·000	0·0	0·0		E ? S ?	9·9	Id. : scud : cir. : breaking.
Dec. 10	2	0	29·943	44·0	43·3		0·00	0·0	0·0		SSE.	10·0	Mist : light rain : scud.
	5	0	29·920	43·6	42·6	44·8 31·4		0·3	0·0	SSE.	SSW ?	9·7	
Dec. 11	20	0	29·348	43·3	42·4	43·4		1·5	0·5	S.		9·7	Dark : light rain : sky to SSE.
	23	0	29·323	46·6	45·6	33·8	0·138	1·3	0·0		S.	10·0	Scud : lightest rain : hazy sky.
Dec. 12	2	0	29·321	51·8	51·0		0·10	1·8	0·8	SW by S.	SSW.	10·0	Scud : nimbi : light rain.
	5	0	29·362	53·8	53·5			1·8	1·3	SW.	SW by W.	10·0	Id. : light rain.
	20	0	29·436	55·5	53·5	55·6		3·3	2·8	SW by S.	SW by S.	10·0	Scud : light rain.
	23	0	29·492	55·5	53·5	51·4	0·332	3·3	2·8	SW by S.	SW by S.	10·0	Id. : id.
Dec. 13	2	0	29·502	55·1	54·3		0·20	3·0	1·0	SSW.	SSW ?	10·0	Id. : rain.
	5	0	29·507	55·2	54·0			2·5	1·3	SW by S.	SSW ?	10·0	Id. : id.
	20	0	29·698	51·1	48·4	56·1		4·8	0·5	SW by S.	SSW.	9·7	Scud : cirri to SE.
	23	0	29·760	50·7	47·8	49·7	0·075	3·3	0·5	SW by S.	SW by S.	9·0	Cirrous scud.
Dec. 14	2	0	29·739	50·3	47·6		0·02	1·3	0·5	SW by S.	W.	9·0	Cirrous clouds.
	5	0	29·730	46·4	44·9			0·5	0·0			10·0	Thick cirrous clouds.
	20	0	29·613	53·1	49·5	55·5		3·8	2·5	SSW.		10·0	Drops of rain : patch of red to SE.
	23	0	29·638	51·4	49·8	45·3	0·017	3·8	1·3	SSW.	SSW.	10·0	Scud : light rain.
Dec. 15	2	0	29·625	55·0	51·6		0·00	1·5	1·5	SSW.	SSW.	10·0	Id.
	5	0	29·594	54·9	50·4			4·8	3·3	SSW.	SW by W.	2·5	Id. : a few cirrous clouds : hazy.
	20	0	29·617	47·8	46·9	56·2		4·5	0·5	SW ?		8·0	Cum.-str. and cir.-str. on hor. : cirri and cir.-haze.
	23	0	29·630	48·8	47·9	47·3	0·022	0·5 ?	0·0		SW.	10·0	Scud : misty drizzle.
Dec. 16	2	0	29·582	50·5	48·9		0·00	0·8	0·3	SW by W.	SW by S.	9·0	Id. : cum. to E. : cirrous clouds above.
	5	0	29·528	50·0	48·5			0·8	0·3	S by E.	SSW.	9·9	Id. : drops of rain as during the day.

Dec. 13d 8h. Maximum pressure of wind 3·2.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	ANEMOMETER.			STATE OF THE SKY.		
				Dry.	Wet.	Max. and Min.		Pressure. Max.	Pressure. Pres.	Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0—10.	
Dec. 16	20	0	29·381	40·7	39·2	50·6		4·5	1·8	SW by W.	SW ?	1·0	Scud : nimbi : cum. : lunar rainbow.
	23	0	29·497	41·3	38·9	39·6	0·158	2·0	1·0	SW by W.	W by S.	1·0	Loose cumuli.
Dec. 17	2	0	29·586	43·7	40·7		0·07	2·3	0·8	SW by W.	W by S.	1·5	Cirrous scud to W.
	5	0	29·628	43·3	40·3	44·6		2·5	2·5	SW.	W by S.	7·0	Loose cumuli.
						40·4 ?							
Dec. 18	20	0	30·127	40·4	38·6	47·5		2·8	0·3	SW ?		2·0	Cirrous clouds and haze.
	23	0	30·162	42·6	41·1	38·9	0·046	1·5	0·5	SSW.	W : N by W.	5·0	Scud : mottled, curled, and linear cirri.
Dec. 19	2	0	30·097	46·3	42·8		0·02	1·8	0·8	SW by W.	W : NNW.	7·0	Loose cum. : mottled cirri.
	5	0	30·074	42·9	41·0			1·8	2·0	SW.		10·0	Cirrous clouds.
	20	0	29·981	48·8	45·0	51·3		3·5	0·5	SW by W.		8·0 ?	Scud : linear cirri : lunar corona.
	23	0	30·028	49·4	45·0	41·6 ?	0·014	1·5	1·0	W.	W.	9·7	Id. : varieties of cirri.
Dec. 20	2	0	29·997	49·3	44·9		0·00	1·8	1·0	W.	W by N.	6·0	Cirrous scud.
	5	0	29·973	47·9	44·6			1·5	0·5	WSW.	W.	10·0	Thick scud : cirrous clouds.
	20	0	29·979	48·0	46·6	51·1		3·3	0·0		WNW.	3·0	Cirrous cir.-cum. : fine cirri.
	23	0	29·993	47·4	44·9	44·5	0·002	0·8	0·5	SSW.	WNW.	8·0	Cir.-cum. : cymoid and other cirri.
Dec. 21	2	0	29·963	50·5	47·4		0·00	1·5	0·5	SW.		10·0	Cirrous clouds : scud to S.
	5	0	29·895	51·3	49·6			1·8	1·3	SW.	SW.	9·0	Scud : cirrous clouds.
	20	0	29·606	49·4	46·4	52·8		4·5	2·0	SW.		10·0	Heavy scud, &c.
	23	0	29·526	49·2	47·1	49·2	0·000	2·8	2·8	SW.	SW.	9·9	Smoky scud : cirrous clouds.
Dec. 22	2	0	29·447	50·5	47·4		0·00	7·0	3·0	SW.	SW.	1·5	Scud : loose cumuli to E.
	5	0	29·404	47·9	45·1			3·5	1·5	SW.		10·0	Id. : light rain.
	20	0	29·139	37·1	34·4	48·5 ?		4·5	2·0	WSW.		1·0	Scud : cirro-strati : sky covering : rain.
	23	0	29·137	36·2	34·4	33·9	0·200	1·8	1·5	SW by W.	SW.	0·8	Id. : cir.-str. : cirri : rain.
Dec. 23	2	0	29·090	38·1	35·2		0·10	3·8	1·0	SW by W.	SW.	1·5	Cumuli.
	5	0	29·035	37·3	34·5			3·0	3·0	SW.	WSW.	8·5	Loose-edged cumuli.
	20	0	29·243	35·3	33·4	38·9		4·0	0·0		W ?	8·0	Scud : cirrous clouds.
	23	0	29·307	35·7	32·9	34·1	0·014	1·8	0·0			0·2	Cumuli on NE. and SE. hor.
Dec. 24	2	0	29·317	38·4	35·2		0·00	0·8	0·3	W by S.		0·2	Id. id.
	5	0	29·367	36·0	33·9	39·1 ?		1·0	0·3	SW by W.	NW by W.	2·0	Semifluid cirro-cumuli.
						32·3							
Dec. 25	20	0	28·764	48·0	45·3	51·3		7·8	3·5	SW.		8·0	Thin watery haze : lunar halo : light rain.
	23	0	28·785	47·4	45·3	45·6	0·076	6·8	2·3	SW.	WSW.	5·0	Cirrous scud : woolly cirri : rainbow : rain.
Dec. 26	2	0	28·825	42·4	40·1		0·03	2·5	1·3	WSW.		9·7	Homogeneous scud : cir. clouds : light rain.
	5	0	28·856	40·6	38·4			1·5	0·5	SW.		5·0	Loose cirro-cumuli : varieties of cirri.
	20	0	28·979	31·3	30·9	48·3		1·8	0·0			1·0	Cirrous clouds.
	23	0	29·064	32·9	32·3	29·2	0·000	0·3	0·3	SW.		0·8	Mixed and linear cirri : cum. to SE.
Dec. 27	2	0	29·095	37·9	35·3		0·00	0·3	0·5	SW by S.	W by N.	1·0	Scud : cirri.
	5	0	29·165	33·6	33·0			0·5	0·0		W.	1·5	Scud : loose cumuli.

Göttingen Mean Time of Observation.				BAROMETER Corrected.	THERMOMETERS.			RAIN GAUGES A. & B.	ANEMOMETER.			STATE OF THE SKY.		
					Dry.	Wet.	Max. and Min.		Pressure.		Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
									Max.	Pres.				
	d.	h.	m.	in.	°	°	°	in.	lbs.	lbs.			0—10.	
Dec.	27	20	0	29·587	33·7	33·5	36·9		0·8	0·0			1·0	Cirrous clouds.
		23	0	29·674	37·5	34·9	30·2	0·029	0·5	0·3	W.		0·1	Scud to SE.
Dec.	28	2	0	29·720	39·3	36·7		0·01	0·3	0·3	SW by W.		5·0	Linear cirri : cum. to SE.
		5	0	29·731	36·9	35·4			0·5	0·3	SW.		10·0	Linear cirri and cirrous haze.
		20	0	29·449	49·1	47·6	……		3·5	2·3	SW.	W.	10·0	Scud : light rain.
		23	0	29·492	49·1	48·1	33·3	0·312	3·0	2·5	WNW.	W.	9·7	Id. : id. : heavy rain to E.
Dec.	29	2	0	29·551	48·3	44·7		0·22	4·5	3·3	W. v.	W : W by N.	2·0	Patches of scud : linear cirri.
		5	0	29·678	45·4	41·8			2·5	1·0	W. v.	W by N.	3·0	Scud and cirrous clouds.
		20	0	29·543	53·5	51·3	53·4		3·3	2·3	SW by W.	W by S.	10·0	Scud.
		23	0	29·529	55·0	52·5	41·9	0·291	4·3	2·5	SW by W.	W by S.	9·7	Id.
Dec.	30	2	0	29·537	57·7	53·5		0·06	7·0	3·5	SW by W.	W.	9·0	Id. : linear cirri, &c.
		5	0	29·552	56·7	53·3			5·5	4·0	WSW. v.	W.	9·0	Id. : id.
		20	0	29·436	54·1	51·4	58·5		6·8	5·0	SW by W.	W.	8·0	Scud.
		23	0	29·464	53·5	49·0	52·3	0·000	6·8	5·5	SW by W.	W.	7·0	Loose cum. : woolly cir.-cum. : rainbow.
Dec.	31	2	0	29·563	46·7	41·8		0·00	6·8	2·0	W. v.	W by N.	6·0	Woolly cirri, &c. : cumuli to N.
		5	0	29·672	42·6	38·5	55·1	0·007	2·5	1·3	WNW.	WNW.	4·0	Varieties of cirri : id. NE. and SW.
							28·4	0·01						

Dec. 31d 5h. The rain noted is the quantity read Jan. 1d 1843.

TERM-DAY

AND

EXTRA METEOROLOGICAL OBSERVATIONS.

1841 AND 1842.

Göttingen Mean Time of Observation.	BAROMETER corrected.	THERMOMETERS.		STATE OF THE SKY.
		Dry.	Wet.	
d. h.	in.	°	°	
July 21 10	29·305	56·5	53·7	
11	29·311	55·6	53·2	
12	29·320	55·3	52·6	
13	29·326	54·7	52·1	
14	29·332	54·7	49·8	
15	29·330	52·7	49·0	
16	29·341	52·5	48·8	
17	29·341	52·9	48·6	
18	29·342	53·2	48·8	
19	29·369	53·6	49·1	
20	29.349	54·4	49·7	
21	29·383	54·2	50·1	
22	29·402	53·1	50·3	
23	29·401	53·7	50·6	
July 22 0	29·430	54·7	51·0	
1	29·439	55·1	51·2	
2	29·465	56·5	52·4	
3	29·478	55·9	52·3	
4	29·486	56·6	52·1	
5	29·510	56·2	52·0	
6	29·484	55·9	51·5	
7	29·532	55·2	51·1	
8	29·568	53·8	50·7	
9	29·548	53·1	49·9	Light rain.
Aug. 27 10	29·864	58·6	56·4	Cloudy : heavy cumuli.
11	29·847	58·8	56·7	Cloudy: cumuli : a gale of wind.
12	29·821	58·1	55·8	Cum. : cir.-str. : high wind.
13	29·779	58·3	56·0	
14	29·780	58·8	56·1	Id. : id. : id.
15	29·793	58·4	56·0	
16	29·774	58·8	56·2	Overcast : drops of rain.
17	29·812	57·3	55·8	Id. : id. : wind.
18	29·826	57·0	56·0	Id. : wind abated.
19	29·808	57·6	56·4	Id.: light rain: clearing to E.
20	29·845	58·2	56·8	Id. : id. : id.
21	29·853	60·1	57·1	Clear : sunshine.
22	29·833	61·8	56·5	Cum. : cir.-str. : fine.
23	29·861	62·1	57·3	Overcast : cum. : light wind.
Aug. 28 0	29·877	63·2	58·1	Clearing : cum. on hor.
1	29·887	64·3	58·1	Scattered cum : light breeze.
2	29·833	64·2	56·4	Id. : id.
3	29·875	65·1	57·1	Clearing : id.
4	29·850	65·3	56·2	Cum. : fresh breeze.
5	29·846	64·0	56·6	Id. : id.
6	29·884	63·4	55·8	Id. : cir. : scud. : calm.
7	29·906	62·0	56·4	Id. : id. : cir.-haze.
8	29·892	59·2	56·8	Much overcast : calm.
9	29·887	58·8	56·3	Id. : id.
Sept. 22 11	29·466	51·1	50·1	Rain : calm.
12	29·432	51·2	50·2	Fair : cloudy : light breeze.
13	29·426	51·8	50·7	Id. : id. : id.
14	29·420	51·9	50·6	Overcast : calm.
15	29·418	51·9	50·5	Id. : id.
16	29·350	50·0	48·9	Id. : id.
17	29·382	50·5	49·6	Id.
18	29·401	51·0	50·1	Id.
19	29·399	51·3	50·0	Id.
20	29·396	51·6	50·4	Id.
21	29·396	52·6	51·3	Id.
22	29·393	53·5	52·1	Id.
Sept. 22 23	29·390	55·0	53·6	Overcast : calm.
Sept. 23 0	29·386	56·1	54·1	Id. : id.
1	29·356	56·9	54·7	Id. : id.
2	29·359	56·7	55·7	Scud : cum. : light rain.
3	29·384	59·0	55·8	Cloudy : gleams of sunshine.
4	29·372	58·8	56·7	Cloudy to N. : cir. : sky to S
5	29·370	58·3	56·0	Cum : cir. : clearer.
6	29·368	56·9	54·6	Id. : sky rather open.
7	29·369	55·6	54·2	Overcast : cumuli.
8	29·386	53·4	52·1	Id. : id.
9	29·388	53·0	51·7	Id. : id.
10	29·397	51·3	50·7	Open sky.
Oct. 20 10	28·873	40·2	38·8	Overcast : light rain.
11	28·953	37·0	35·5	Rain : wind.
12	28·998	34·6	33·7	Heavy rain : wind.
13	29·118	35·9	33·6	Light showers of sleet : windy,
14	29·206	36·0	34·1	Cloudy : fair : wind abating.
15	29·258	35·6	33·5	Id. : id. : wind rising.
16	29·285	35·0	32·4	Clear : light breeze.
17	29·361	33·4	30·8	Id. : id.
18	29·374	33·2	30·3	Id. : id.
19	29·441	32·7	29·9	Id.
20	29·456	33·7	31·1	Cumuli.
21	29·497	34·7	31·8	Clear.
22	29·524	35·8	32·7	Id. : fresh breeze.
23	29·561	37·2	34·0	Clear.
Oct. 21 0	29·568	38·0	33·6	Id.
1	29·587	39·6	36·0	Id. : calm.
2	29·628	41·0	37·0	Id. : id.
3	29·608	41·7	37·5	Cum. : cir. : calm.
4	29·607	40·5	37·0	Many cum. : cirri.
5	29·682	39·6	36·8	Cir.-str.
6	29·703	38·8	36·5	Nearly overcast : cir.-str.
7	29·737	37·9	35·7	Clouds on hor. : sky in zen.
8	29·761	37·5	35·5	Id. : id.
9	29·769	36·5	34·8	Clear.
Nov. 26 10	29·613	29·6	30·1	Hazy : lunar halo.
11	29·618	30·2	30·6	Id. : halo less distinct.
12	29·600	31·1	30·9	Overcast.
13	29·595	31·8	31·5	Id.
14	29·580	32·4	31·8	Id. : calm : light snow.
15	29·560	32·5	31·8	Id. : id. : snow.
16	29·531	32·6	31·7	Id. : id. : id.
17	29·516	32·9	31·9	Id. : id. : id.
18	29·512	33·6	32·0	Id. : id. : id.
19	29·499	33·6	32·6	Overcast : calm.
20	29·500	34·1	33·1	Id.
21	29·508	34·5	33·1	Id. : snow.
22	29·496	34·7	33·4	Id.
23	29·494	35·5	33·8	Id.
Nov. 27 0	29·493	35·9	34·2	Id.
1	29·483	36·9	34·9	Id.
2	29·476	36·8	34·7	Id.
3	29·463	36·7	34·7	Id.
4	29·453	36·7	34·7	Id.
5	29·455	36·7	35·2	Id.
6	29·470	36·5	35·4	Id : light rain.
7	29·459	36·7	35·8	Id. : id.
8	29·460	37·5	36·5	Id. : thick mist.
9	29·448	38·1	37·0	Id. : light rain.

Göttingen Mean Time of Observation.		BAROMETER corrected.	THERMOMETERS.		STATE OF THE SKY.
			Dry.	Wet.	
d.	h.	in.	°	°	
c. 22	10	29·551	22·3	21·8	Clear : a few cirri.
	11	29·538	21·7	20·5	Id. : id.
	12	29·530	20·5	19·9	Id. : id. : cum.
	13	29·514	23·5	22·6	Overcast.
	14	29·503	28·4	28·0	Id. : calm.
	15	29·479	32·4	31·4	Light rain.
	16	29·459	34·5	33·2	Id.
	17	29·442	35·5	35·3	Much overcast.
	18	29·426	36·1	35·5	Id.
	19	29·413	36·7	35·8	Id.
	20	29·406	36·5	35·8	Id.
	21	29·390	36·4	35·8	Id. : foggy.
	22	29·381	36·6	35·7	Fog.
	23	29·366	37·7	36·8	Heavy mist.
c. 23	0	29·344	38·4	37·5	Overcast : mist gone.
	1	29·316	38·6	37·5	Id. ; rain.
	2	29·295	38·5	37·5	Rain : mist in the valleys.
	3	29·284	38·9	37·9	Overcast.
	4	29·277	38·7	37·7	Id.
	5	29·270	39·2	38·4	Id.
	6	29·285	39·1	38·2	Id.
	7	29·316	39·5	38·0	Id.
	8	29·336	39·1	37·3	Cumuli : breaking up.
	9	29·384	39·4	37·1	Clear : mottled-cir. : cir-cum : converging to N.
n. 19	10	30·006	40·5	39·2	Overcast.
	11	30·008	40·9	39·6	Id.
	12	29·985	40·1	38·4	Id. : light wind.
	13	29·978	39·3	37·7	Clear in zen. : wind rising.
	14	29·977	39·3	37·8	Id.
	15	29·971	39·3	37·8	
	16	29·966	39·0	37·7	Overcast.
	17	29·950	39·4	37·8	Id. : clearing in zen.
	18	29·928	39·5	37·8	Quite clear.
	19	29·916	37·7	36·3	A few thin clouds.
	20	29·907	37·3	35·6	Clear : linear cirri.
	21	29·917	36·7	35·5	Id. : id.
	22	29·911	36·0	34·5	Clear : calm.
	23	29·903	37·5	36·0	Id. : id.
n. 20	0	29·892	38·6	37·0	Id. : id.
	1	29·877	41·2	38·3	Id. : id.
	2	29·868	41·1	38·7	Clear : cirro-cumuli.
	3	29·854	40·6	38·5	Id. : id.
	4	29·852	39·8	37·7	More overcast : cumuli.
	5	29·842	38·2	36·4	Clear.
	6	29·835	35·6	34·0	Id. : a few cirri on hor.
	7	29·836	34·6	33·3	Id. : id.
	8	29·834	34·0	33·1	Very clear.
	9	29·836	33·8	32·6	Id.
b. 25	10	28·947	34·5	32·5	Clear.
	11	28·953	33·2	32·0	Id.
	12	28·951	32·7	31·7	A few light clouds : lunar halo.
	13	28·941	32·5	31·5	Id.
	14	28·919	31·6	30·8	Cloudy.
	15	28·895	31·8	30·9	Id.
	16	28·856	34·8	33·0	Id.
	17	28·832	34·5	33·4	Id. : wind rising.
	18	28·831	35·7	34·1	Id. : light wind.
	19	28·821	34·4	32·9	Clouds breaking : mod. wind.
	20	28·856	34·7	32·8	Snow.
	21	28·864	34·5	33·7	Open sky : cumuli.
Feb. 25	22	28·876	36·9	35·4	Overcast : snow.
	23	28·895	34·5	33·8	Clearing : wind rising.
Feb. 26	0	28·921	39·5	36·7	Many cumuli.
	1	28·938	39·8	36·4	Cloudy in zen. and NW.
	2	28·958	39·4	35·8	Many cumuli.
	3	28·973	40·1	35·7	Id.
	4	28·983	39·7	34·8	Open sky : cumuli.
	5	28·998	39·5	34·7	Clear : a few cumuli.
	6	29·019	35·0	33·1	Id. : id.
	7	29·048	35·2	32·9	Id. : id.
	8	29·077	34·4	32·2	Id.
	9	29·109	33·3	31·8	Cumuli on horizon.
Mar. 23	10	30·060	33·4	32·8	Overcast : cumuli.
	11	30·051	34·7	33·6	Id. : calm.
	12	30·037	35·4	34·1	Id. : id.
	13	30·029	37·1	35·7	Id. : id.
	14	30·020	36·2	34·6	Id. : id.
	15	30·008	36·7	35·5	Id. : id.
	16	29·985	39·3	37·9	Id. : id.
	17	29·983	39·7	38·5	Id. : id.
	18	29·990	40·4	39·8	Id. : id.
	19	30·002	43·7	41·7	Id. : id.
	20	30·017	44·8	42·8	Clouds breaking.
	21	30·018	46·6	13·7	Overcast : cum. : cum.-str.
	22	30·024	47·8	44·8	Id. : id. : a few cirri.
	23	30·017	50·1	46·1	Id. : id.
Mar. 24	0	30·014	51·8	47·1	Id. : id.
	1	30·016	51·9	47·1	Id. : id.
	2	30·005	53·6	49·5	Breaking : cum. : cum.-str.
	3	29·982	55·0	49·6	Broken clouds.
	4	29·965	55·0	49·6	Clouds dispersing.
	5	29·957	54·4	48·8	Clear in zenith.
	6	29·952	52·6	46·6	Clear : a few cumuli.
	7	29·941	48·6	44·6	Clear : cirri : cum. on hor.
	8	29·970	45·8	42·7	Id. : id.
	9	29·970	42·7	40·7	Id. : a few cumuli.
Apr. 20	10	29·973	46·7	43·8	Clear : a few cirri.
	11	29·967	42·0	40·5	Id. : id.
	12	29·974	40·8	39·7	Id. : id.
	13	29·970	41·5	40·5	Much cirrous haze.
	14	29·976	41·2	40·0	Clear : cumuli.
	15	29·972	38·8	38·2	Id. : faint traces of Aurora.
	16	29·980	36·8	36·5	Id.
	17	29·983	35·3	34·7	Id. : calm.
	18	29·972	36·8	36·3	Id.
	19	29·972	38·8	38·0	
	20	29·971	43·7	41·7	Id. : haze on horizon.
	21	29·971	47·8	45·6	
	22	29·975	52·7	47·3	Id. : nearly calm.
	23	29·964	56·8	49·1	Id. : id.
Apr. 21	0	29·952	59·8	49·9	Id. : id.
	1	29·945	63·3	51·7	A few linear cirri.
	2	29·924	65·4	52·0	Linear cirri to W. over ¼ of sky.
	3	29·912	66·2	52·0	Id.
	4	29·897	67·8	52·7	Diffuse cirri over sky.
	5	29·890	66·4	55·8	Id.
	6	29·887	65·1	55·3	Id.
	7	29·892	62·4	55·4	Id.
	8	29·893	57·1	53·0	Nearly covered with cir.-cum and cir.-str.
	9	29·896	55·7	52·3	Id.

Göttingen Mean Time of Observation.			Barometer Corrected.	Thermometers.		Wind.		State of the Sky.		
				Dry.	Wet.	Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	0—6.			0—10.	
May 5	8	0	29·126	49·8	49·6	0·6	SSW.		......	Light rain.
May 6	8	0	28·849	45·6	45·6	......			......	Rain.
May 7	23	0	28·912	......	......	......			......	
May 14	23	20	30·180	56·7	......	......			......	
May 15	7	20	30·233	......	......	......			......	
May 16	6	0	30·190	64·1	63.5	......			......	
	7	0	30·195	62·6	62·0	......			......	
May 21	23	0	29·517	58·2	52·0	......			4·0	Cumuli.
May 29	0	0	29·697	59·5	52·5	1·5			6·0	Cumuli and cirri.
May 27	10	0	29·661	49·9	47·4	0·0			2·0	Cirri.
	11	0	29·665	47·4	45·6	0·0			2·0	Cirri to N., pointing NNE.
	12	0	29·669	46·7	45·5	......			2·0	Id. : id. N.
	13	0	29·667	45·4	44·3	......			2·0	Id. : id.
	14	0	29·662	44·0	43·4	......			2·0	Id. : moving off to E.
	15	0	29·663	43·1	42·5	0·0			0·0	
	16	0	29·660	44·2	43·5	0·0			1·0	Cirri : cirro-strati.
	17	0	29·650	43·6	42·8	0·0			1·0	Cirro-strati to E.
	18	0	29·665	46·8	44·9	0·0			0·0	Clear.
	19	0	29·667	52·0	48·9	0·0			0·0	Id.
	20	0	29·682	52·1	49·1	......			10·0	Overcast : light breeze.
	21	0	29·688	55·1	50·9	......			......	Clearing : id.
	22	0	29·681	58·7	51·4	0·3			5·0	
	23	0	29·687	58·3	51·7	0·5	W.	W.	6·0	Cumuli.
May 28	0	0	29·692	59·8	51·9	0·6	W.	0.	3·0	Id.
	1	0	29·695	60·0	52·2	0·3	W.		8·0	Id.
	2	0	29·699	58·5	51·2	0·8	W.		9·0	Id.
	3	0	29·704	59·2	51·4	0·8			8·0	Cumuli in ranges round horizon.
	4	0	29·708	60·1	52·4	0·3			......	Id.
	5	0	29·718	59·8	51·0	0·5			2·0	Id.
	6	0	29·721	57·9	50·5	......			3·0	Cumuli : cirri.
	7	0	29·723	57 7	50·2	0·3			1·0	Id. : id.
	8	0	29·722	55·1	49·4	0·0			3·0	Id. : id.
	9	0	29·730	51·9	48·9	0·0			6·0	
June 5	2	0	29·710	64·0	54·7	......			6·0	Light showers during the day.
June 11	23	20	30·187	58·5	55·1	0·0			0·3	Linear cirri.
June 18	23	30	29·555	52·7	47·8	1·3		E.	10·0	
June 20	20	0	29·349	57·2	55·8	0·0			10·0	Scud.
	21	30	29·340	63·6	59·4	0·3		S : 0.	9·0	Scud and cumuli : cirro-cumuli.
	23	0	29·336	63·9	60·1	0·3	SSW.	SSW.	8·7	Id. : id. : linear cir.
June 21	0	0	29·334	63·9	59·9	0·5	SSW ?	SSW.	9·7	As at 23^h, passing showers.
	1	0	29·331	66·8	60·4	0·4		SSW.	8·0	Scud and cum. : cirri, &c. : towering cum. to
	2	0	29·314	69·3	61·9	0·3			5·0	Towering cum and nimbi : cir. : like th
	3	0	29·301	69·8	61·0	0·2			6·0	Cum. : nimbi : cirri, &c. [
	4	0	29·282	61·8	59·9	0·3		E by N : SSW : 0.	9·0	Cum. : nimbi : cirri : thunder-storm :
	5	0	29·288	61·6	59·2	0·5	SSE.		10·0	Nimbi, &c. : thunder : light rain.
	6	0	29·311	57·5	55·5	0·0		SSE.	10·0	Nimbi : heavy rain : thunder-storm.
	7	5	29·320	56·4	55·5	0·0			10·0	Nimbi : distant thunder.
	8	15	29·318	56·7	56·1	0·0			9·9	Nimbi and scud : cirro-strati, &c. [to S
	8	50	29·316	56·5	56·0	0·0		SW : SE.	9·7	Cirro-cumulous scud : nimbi and scud :
June 21	20	0	29·348	55·7	50·7	0·5	W.	W.	2·0	Scud : cum.-str. : cir.-str. : cirri.
	21	0	29·407	56·7	51·2	0·4	W.		3·5	Id. : id. : id. : id.
	23	0	29·420	59·3	51·1	0·5			5·0	Cumuli : reticulated cirri.
June 22	0	5	29·428	60·5	52·2	0·3			9·0	Id. : id.
	2	0	29·424	64·6	54·6	0·8		WSW.	7·0	Id. : cirri.
	3	0	29·431	64·1	53·9	......		WSW.	6·0	Id. : cir-haze : fibrous cirri.
	5	0	29·436	62·6	53·9	0·6			8·0	Id. : cir.-haze chiefly, cir-cum.
	6	40	29·442	63·7	53·7	0·3			8·0	Cum. on hor. : cirri.
	10	0	29·463	51·6	48·6	0·0			3·0	Cirro-cumuli to S. : cirri and cumuli to N

Göttingen Mean Time of Observation.	BAROMETER Corrected.	THERMOMETERS.		WIND.		STATE OF THE SKY.		
		Dry.	Wet.	Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d. h. m.	in.	°	°	0—6.			0—10.	
June 22 11 0	29·467	48·9	47·1	0·3	W.		......	Clouds on hor.: clear in zen.
12 0	29·472	46·9	45·3	0·0			2·0	Cumuli, &c. to S.
13 0	29·474	48·4	45·8	0·3			8·0	Chiefly large cirro-cumuli.
14 0	29·473	46·6	44·2	0·3			3·0	
15 0	29·477	44·0	43·0	0·5			1·0	Cirri to E.
16 0	29·471	42·0	41·2	0·3			2·0	Id.
17 0	29·476	43·8	42·7	0·0			0·5	Linear cirri to E.
18 0	29·480	49·1	46·9	0·0			0·5	
19 0	29·493	55·2	50·9	0·0			0·5	
20 0	29·493	57·6	52·9	0·0			0·5	
21 0	29·489	57·5	52·7	0·3			0·8	
22 0	29·480	59·5	52·9	0·0			3·0	
23 0	29·472	60·3	52·0	0·0			3·0	
June 23 0 0	29·471	62·3	53·7	0·3	W.		1·3	
1 0	29·457	63·9	54·2	0·3			1.5	
2 0	29·447	63·1	54·5	......			......	Cumuli, chiefly on hor.: cirri.
3 0	29·438	63·7	52·8	0·6	WSW.		7·0	Cumuli on hor.: cirri: cir-haze.
4 0	29·434	61·6	52·7	0·6	WSW.		9·0	Id.: id.: id.
5 0	29·418	60·0	52·1	0·3			7·0	
6 0	29·386	60·8	53·0	0·3			7·0	Id.
7 0	29·356	58·8	51·9	0·3			10·0	
8 0	29·322	56·5	51·9	......			10·0	Scud.
9 0	29·288	55·6	52·1	0·3			10·0	Id.
10 0	29·249	54·1	52·8	......			......	
June 25 23 0	29·207	57·0	50·4	1·8			9·5	Cumuli.
June 27 8 2	29·930	55·9	50·1	0·6	WNW?		7·0	Fine cir.-cum. radiating from NW.
June 28 8 30	29·647	58·7	57·0	2·0	SW.	SW: 0.	10·0	Scud: cir.-cum.
June 29 8 35	29·707	55·5	49·5	0·8	W.	W: 0.	8·0?	Scud: cirro-strati: cirri.
July 1 20 0	29·382	51·7	49·9	......			10·0	Scud: cirri: light rain.
21 0	29·386	50·0	49·0	......			10·0	Rain.
22 0	29·386	51·0	49·3	......			10·0	
23 0	29·395	50·4	47·8	......			10·0	Scud: cumuli.
July 2 0 0	29·398	52·7	49·5	......			......	
1 0	29·408	52·4	49·6	0·3			10·0	
2 0	29·415	55·3	51·4	0·5			9·9	Scud: cumuli: rain.
3 0	29·436	55·2	50·9	0·0			8·0	Cumuli: cirri.
5 0	29·465	56·9	51·7	1·0			6·0	Cum.: cir.-cum.: cir.-str.
6 0	29·501	53·7	50·9	1·0			9·5	Cumuli.
7 0	29·530	53·0	50·0	0·2			9·5	Cumuli: large cirro-cumuli.
9 0	29·561	51·4	48·9	......			......	
12 0	29·601	48·4	47·3	......			......	
13 0	29·606	49·1	47·9	......			......	
July 3 1 0	29·636	56·5	52·9	0·0			7·5	Scud: rain.
20 0	29·382	50·6	49·6	0·0			10·0	Id.
21 0	29·364	......	......	......			......	
22 0	29·345	56·6	54·0	0·0			10·0	
23 0	29·329	60·0	56·6	......			......	
July 4 0 0	29·308	59·9	57·1	0·0			10·0	Scud: light rain.
1 0	29·286	59·9	58·1	......			......	
2 0	29·261	59·9	58·0	......			10·0	Scud.
3 0	29·237	64·4	62·1	0·0		SW.	10·0	Id., moving quickly.
4 0	29·222	63·1	59·5	0·3			10·0	
5 0	29·200	63·8	59·2	0·4			10·0	Cumuli: thick cirrous haze.
6 0	29·190	62·0	57·6	1·5			10·0	Id.: id.
7 0	29·166	61·5	58·0	0·3			10·0	Scud: rain.
July 7 8 45	29·438	53·7	52·0	0·8	S.		10·0	Indefinable mass: showers.
July 18 8 40	29·716	57·1	55·4	0·8		ESE.	10·0	Scud: cirro-cumuli: linear cirri.
July 20 10 0	29·629	52·5	50·6	0·8			10·0	
11 0	29·637	52·6	50·3	0·5			9·8	Breaking to N.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.		WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	0—6.			0—10.	
July 20	12	0	29·648	52·0	49·6	0·2			10·0	
	13	0	29·645	51·8	50·3	0·0			10·0	
	14	0	29·637	51·6	49·9	……			10·0	
	15	0	29·634	51·4	49·4	0·0			10·0	
	16	0	29·623	51·4	49·4	0·3			9·0	
	17	0	29·619	50·5	49·0	0·0			7·0	Cirro-cumuli.
	18	0	29·620	53·7	50·4	……			2·0	Id.: cirri.
	19	0	29·613	56·0	51·6	0·3			2·0	Loose cumuli: cirri to N.
	20	0	29·616	56·6	52·7	0·3	N by E.		2·0	Cumuli: haze to SE.
	21	0	29·621	56·0	52·0	0·3	N by E.		3·0	
	22	0	29·614	57·4	51·9	0·3	N by E.		3·0	
	23	0	29·627	58·6	52·9	0·8	N by E.	N by E: ENE: 0.	6·0	Two currents of loose cumuli: cirro-cumuli.
July 21	0	0	29·643	58·3	52·2	1·0	N by E.		4·0	Loose cumuli.
	1	0	29·646	58·6	52·6	1·5	N by E.		4·0	Id.
	2	0	29·649	58·8	52·7	0·5	N by E.		9·0	Id.
	3	0	29·646	57·7	51·9	1·0		N by E: NNW.	7·0	Scud: cumuli.
	4	0	29·650	60·0	53·0	0·5			5·0	Id.
	5	0	29·651	58·0	50·9	0·5			2·0	
	6	0	29·659	58·8	51·7	0·5			2·0	Id.
	7	0	29·667	57·1	51·0	1·0	N by E.		1·0	Id.
	8	0	29·682	55·0	49·5	0·8			1·0	Id.
	9	0	29·697	51·8	47·4	0·5	N by E.		1·0	Piles of craggy cumuli from N. to SE.
	10	0	29·713	51·6	47·6	1·3	N ?	NNE.	4·0	Mass of loose cumuli.
Aug. 19	6	0	29·569	67·1	63·8	0·0			10·0	Cirrous clouds and haze.
	7	0	29·521	67·6	62·7	0·2		SSW.	10·0	Loose cum.: cir.-haze.
	8	0	29·523	65·6	62·3	0·0			10·0	Cirrous clouds and haze.
Aug. 26	10	0	29·847	54·9	53·2	0·0			10·0	
	11	0	29·852	54·9	53·1	0·2	NE.		10·0	
	12	0	29·851	54·8	53·0	0·2	NE.		10·0	
	13	0	29·853	54·9	53·0	0·2	NE.		10·0	
	14	0	29·850	54·9	53·5	0·0			10·0	
	15	0	29·847	55·0	53·7	0·0			10·0	
	16	0	29·841	54·9	53·6	0·0			10·0	
	17	0	29·838	55·0	53·7	0·0			10·0	
	18	0	29·847	55·2	53·5	0·1			10·0	
	19	0	29·853	55·0	53·3	0·2			10·0	
	20	0	29·861	55·6	53·4	0·3		NE.	10·0	Scud.
	21	0	29·866	56·5	53·5	0·5		NE.	9·9	Id.: cirro-cumuli.
	22	0	29·866	58·1	54·8	0·6			8·5	Id.: id.
	23	0	29·864	59·0	54·8	0·3	NE.		8·0	Id.: id.
Aug. 27	0	0	29·857	60·6	55·7	0·3	NE.		8·0	Id.: id.
	1	0	29·850	61·6	56·0	0·3	NE.		7·0	Id.: id.
	2	0	29·849	63·9	57·7	0·8	NE.		5·0	Id.: id.
	3	0	29·848	63·7	58·1	0·8	NNE.		3·5	
	4	0	29·841	62·9	57·1	0·3	NE.		4·0	
	5	0	29·839	63·8	57·0	0·3	NNE.		5·0	
	6	0	29·837	62·6	56·4	0·5	NNE.		9·0	Patches of scud: loose cumuli.
	7	0	29·846	60·5	56·0	0·3	NNE.		8·0	Id.: id.
	8	0	29·858	57·9	53·8	0·0		E.	6·0	Loose cumuli.
	9	0	29·868	54·5	52·4	0·0			4·0	Cirro-cumuli.
	10	0	29·872	53·7	51·7	0·0			9·7	
Sept. 2	9	0	29·819	63·0	61·2	……			10·0	Scud.
Sept. 20	19	0	29·302	41·9	41·3	0·0			10·0	Homogeneous mass: light mist.
	20	0	29·312	43·4	42·8	0·0		E.	10·0	Scud, &c.: heavy mist.
	21	0	29·321	44·4	43·8	0·0			10·0	Homogeneous: rain since 20^{h} 30^{m}.
	22	0	29·342	45·8	45·4	0·0		E: N.	10·0	Two currents of scud: light rain.
	23	0	29·346	49·0	48·0	0·0		NE ?	9·5	Scud: nimbi ?: smart shower.
Sept. 21	0	0	29·338	51·8	49·7	0·2		Various.	5·0	Scuds: cir.-cum: cum.
	1	0	29·331	54·9	52·9	0·2	NNE.	NNE: SW: WNW.	4·5	Scud: cumuli.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.		WIND.		STATE OF THE SKY.		
				Dry.	Wet.	Estimated force.	Direction.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	0–6.			0—10.	
ept. 21	2	0	29·331	56·0	50·7	0·3	NE.	NE.	3·0	Scud : cumuli.
	3	0	29·327	56·1	49·8	0·6	NE.	S : various.	6·0	Id. : id. : cirri.
	4	0	29·329	55·5	49·9	0·3	ENE.	N by E : NE : S.	7·0	Id. : cirro-cumuli.
	5	0	29·332	54·1	49·5	0·3	NE.	NW : SSE.	8·0	Two currents of cirro-cumuli : cum. on hor.
	6	0	29·338	52·7	49·0	0·2			7·5	Scud : large loose cir.-cum, moving very slowly : cum.
	7	0	29·350	49·6	48·4	0.0		NE ?	6·0	Scud : cirro-cumuli : thunder to S. at 6h 30m.
	8	0	29·352	46·5	45·8	0·0			5·0	Cirro-cumuli.
	9	0	29·354	45·4	44·8	0·0			9·0	Cir.-cum. to E. : heavy cum. to W.
	10	0	29·360	46·8	46·2	0·0		NE.	9 0	Cir.-cum. : cumuli on hor.
	11	0	29·364	47·0	46·3	0·0		NE.	8·0	Cirro-cumuli : scud.
	12	0	29·361	43·8	43·6	0·0		NE.	8·0	Scud and loose cumuli.
	13	0	29·361	44·0	43·5	0·0		NE.	7·5	Id.
	14	0	29·365	44·2	43·8	0·0		NE.	6·5	Id.
	15	0	29·349	45·2	44·6	0·0		NNE.	7·0	Id. : cum. on NE. hor.
	16	0	29·345	46·3	45·4	0·0		NNE.	9·0	Id. : id.
	17	0	29·344	45·4	44·9	0·0		N.	6·0	Large cirro-cumuli and cumuli.
	18	0	29·341	45·8	45·6	0·0		NE.	9·7	Scud : cir.-haze.
	19	0	29·346	48·4	47·0	0·0		NE : SSE.	9·7	Two currents of scud : cir.-haze.
	20	0	29·345	49·9	47·9	0·0		NE : SSE.	10·0	Id. : id.
	21	0	29·336	51.8	48·9	0·3	N.	N.	8·0	Scud : cirri : much cirrous haze.
	22	0	29·345	52·7	49·3	0·5	N.	N.	10·0	Scud.
	23	0	29·344	54·0	48·6	0·5	N.		10·0	Cumuli on hor. : breaking.
ept. 22	0	0	29·339	54·0	48·8	0·5	N.		10·0	Id. : id.
	1	0	29·336	54·9	49·3	0·5	N.	N.	10·0	Scud : much cirrous haze.
	2	0	29·333	55·0	49·1	0·5	N.	N.	10·0	Id. : id.
	3	0	29·313	55·1	49·6	0·5	N.		10·0	Id. : id.
	4	0	29·301	54·2	49·6	1·0			10·0	As at 3h, a few drops of rain.
	5	0	29·297	52·9	48·5	0·3	N.		10·0	Scud : rain.
	6	0	29·295	51·1	47·8	0·3			10·0	Id. : id.
	7	0	29·283	50·1	47·1	0·8	N.		10·0	Id. : light rain.
	8	0	29·284	48·9	46·8	0·4	N.		10·0	Id.
	9	0	29·271	48·5	46·6	0·5	NNW.		10·0	Id. : smart shower.
	10	0	29·252	48·4	46·8	0·5	N ?		10·0	Id. : heavy rain.
ct. 17	6	0	29·429	47·9	44·8	……			……	
ct. 19	10	0	29·294	34·4	31·5	0·4	WNW.		1·0	Linear and woolly cirri : cum. on hor.
	11	0	29·287	32·8	30·6	0·5	W by N.		0·5	Clouds on horizon.
	12	0	29·296	33·2	30·5	0·4	WNW.		0·3	Id. : cumuli ?
	13	0	29·314	32·6	30·1	0·3	W by N.		0·0	
	14	0	29·316	30·6	29·4	0·0			0·0	
	15	0	29·311	30·1	28·8	0·3	W by S.		0·0	Cumuli on NE. hor. : lunar corona.
	16	0	29·314	27·5	27·3	0·0			0·0	Id. : id.
	17	0	29·316	27·2	26·6	0·0			0·0	Lunar corona.
	18	0	29·328	29·7	28·1	0·0			0·0	A few clouds on E. hor. : faint corona.
	19	0	29·331	27·2	26·6	0·0			0·0	
	20	0	29·340	29·7	28·3	0·0			1·0	Heavy cumuli on E. hor.
	21	0	29·354	33·5	30·9	0·0			1·0	Id.
	22	0	29·360	34·9	33·0	0·3	SW by W.		1·0	Fine cumuli on E. hor. : cir.-cum in zen.
	23	0	29·377	39·5	35·3	0·3	W by S.	N by W : W.	2·0	Loose cum. : loose cir.-cum. : towering cum. on E. hor.
20	0	0	29·385	41·0	35·6	0·5	N by W.	NW.	1·0	Cumuli round horizon.
	1	0	29·385	41·0	35·0	0·5	N by W.	W.	1·5	Id.
	2	0	29·397	41·7	35·5	0·8	N by W.	NW.	2·0	Id.
	3	0	29·394	42·2	35·7	0·7	NW ?		1·5	Id.
	4	0	29·412	41·7	35·5	0·3	NW by N.		1·5	Id.
	5	0	29·432	39·5	34·4	0·3	NNW.		2·0	Cumuli on NE. and S. hor.
	6	0	29·469	34·3	30·9	0·3	NNW.		2·0	Id.
	7	0	29·487	33·5	30·9	0·0			0·3	Id.
	8	0	29·490	33·0	30·6	0·0			0·3	Id.
	9	0	29·529	34·4	31·4	0·3	NNW.		0·3	Id.
	10	0	29·553	32·4	29·8	0·3	N by W.		0·3	Id.
ov. 12	7	0	28·888	45·8	43·2	……			……	
ov. 19	8	0	29·475	46·6	45·6	0·5			10·0	Wind rising.

Göttingen Mean Time of Observation.			BAROMETER Corrected.	THERMOMETERS.		ANEMOMETER.			STATE OF THE SKY.		
				Dry.	Wet.	Pressure. Max.	Pressure. Pres.	Direction of Wind.	Clouds moving from	Quantity of Clouds.	Species of Clouds, &c.
d.	h.	m.	in.	°	°	lbs.	lbs.			0—10.	
Nov. 25	10	0	28·641	41·2	39·8	1·5	0·5	ENE.		9·5	Scud.
	11	0	28·644	40·9	40·0	0·5	0·0			8·5	Id.
	12	0	28·646	41·6	40·4	0·0	0·0			10·0	Id.
	13	0	28·646	41·3	40·7	0·0	0·0			10·0	Id.
	14	0	28·644	40·5	39·9	0·0	0·0			10·0	Id. : light shower.
	15	0	28·645	39·1	38·7	0·0	0·0			8·7	Id.
	16	0	28·659	38·0	37·6	0·0	0·0			5·0	Id.
	17	0	28·662	36·7	36·0	0·0	0·0			7·0	Id.
	18	0	28·671	37·3	36·6	0·0	0·0			10·0	Id.
	19	0	28·674	37·2	36·6	0·0	0·0			10·0	Id.
	20	0	28·678	37·4	36·7	0·0	0·0		SE by E.	9·9	Id. : hazy : red to E. : showers.
	21	0	28·686	37·9	37·4	0·3	0·0		SE ?	9·9	Id. : id. : id. : cum. on E. hor.
	22	0	28·694	38·5	37·8	0·0	0·0			9·0	Sky to S.
	23	0	28·700	39·0	38·5	0·0	0·0			8·0	Sky in zen. : heavy clouds in hor.
Nov. 26	0	0	28·713	39·7	39·1	0·0	0·0		SE ?	10·0	Scud.
	1	0	28·711	39·7	39·2	0·0	0·0			10·0	Id. : hazy.
	2	0	28·711	40·2	39·5	0·0	0·0			10·0	Id. : id.
	3	0	28·710	40·5	39·3	0·0	0·0			10·0	Id.
	4	0	28·725	40·5	39·5	0·0	0·0		S by E.	9·7	Cirro-cumulous scud : sky to S.
	5	0	28·731	39·9	39·3	0·0	0·0			10·0	Dense scud.
	6	0	28·743	40·5	39·4	0·3	0·3	ESE.		10·0	Id.
	7	0	28·759	40·5	39·1	0·0	0·0			10·0	Id.
	8	0	28·775	40·0	39·4	0·0	0·0			10·0	Id. : rain.
	9	0	28·795	39·9	39·4	0·3	0·0			10·0	Very dark.
	10	0	28·814	39·8	39·0	0·3	0·0			7·0	Id.
Dec. 9	7	0	30·188	44·5	44·2	0·0	0·0	NE ?		10·0	
Dec. 20	20	0	29·979	48·0	46·6	3·3	0·0		WNW.	3·0	Fine cirri : cirrous cirro-cumuli.
	21	0	29·979	47·2	43·6	0·5	0·3	SSW.	WNW.	1·5	Fine cirrous clouds : mottled cir. : cir.-
	22	0	29·987	44·9	43·2	0·8	1·5	SSW.	WNW.	3·0	Cirro-cum. : varieties of cirri.
	23	0	29·993	47·4	44·9	0·8	0·5	SSW.	WNW.	8·0	As before : cymoid-cirri at 23h 30m.
Dec. 21	0	0	29·984	48·6	45·8	1·0	0·8	SW.	WNW.	9·0	Large woolly cir.-cum. : cir.-str. : cir.
	1	0	29·978	49·9	47·2	1·5	0·8	SW v.	W ?	10·0	Scud : semi-fluid cir.-str. : sky troubled li
	2	0	29·963	50·5	47·4	1·5	0·5	SW.		10·0	Id. : cir.-clouds unevenly spread.
	3	0	29·938	50·8	48·8	1·3	1·3	SW.	WSW : SW : WNW.	10·0	Scuds : thick cir.-clouds.
	4	0	29·917	51·3	49·4	2·0	1·3	SW.	SW : W : W.	9·0	Id. : id. : sky troubled li
	5	0	29·895	51·3	49·6	1·8	1·3	SW.	SW.	9·0	Id. : id.
	6	0	29·893	50·8	49·6	2·0	1·0	SW.	SW.	10·0	Id. : dark.
	7	0	29·893	51·6	50·2	1·8	0·8	SW.		10·0	Quite dark.
	8	0	29·883	51·9	50·4	1·3	0·5	SW.		9·9	Dark to N. : scud ? : cir.-haze.
	9	0	29·844	51·7	50·1	2·3	1·3	SW by W.		4·0	Dark.
	10	0	29·830	52·1	50·4	2·0	1·8	SW.	SW.	10·0	Scud : cirri radiating from SE.
	11	0	29·824	52·1	50·4	2·3	0·8	SW.		8·0	Id. : sky in zenith.
	12	0	29·757	50·3	48·4	2·0	1·5	SW.	SW.	8·0	Id.
	13	0	29·730	49·6	47·4	2·8	2·5	SW.		9·0	Id. : cirri.
	14	0	29·753	49·0	46·6	3·0	1·8	SW.	SW.	8·0	Id.
	15	0	29·734	49·0	46·5	2·8	2·5	SW.		8·0	Id.
	16	0	29·727	49·0	46·6	2·8	1·0	SW.		10·0	Id.
	17	0	29·699	49·1	46·7	1·8	1·3	SW by S.		9·8	Dark scud.
	18	0	29·654	48·5	45·6	3·3	3·3	SW.		5·0	Cirrous clouds on horizon.
	19	0	29·617	48·6	45·6	3·0	2·3	SW.		5·0	Id.
	20	0	29·606	49·4	46·4	4·5	2·0	SW.		10·0	Scud.
	21	0	29·585	49·4	46·4	3·0	2·0	SSW.	SW.	10·0	Id.
	22	0	29·568	48·6	46·6	3·5	1·8	SW.	SW.	10·0	Id. : cirrous clouds. [cl
	23	0	29·526	49·2	47·1	2·8	2·8	SW.		9·9	Smoky scud very low and quickly : cir
Dec. 22	0	0	29·482	49·5	47·2	4·8	5·3	SW.	SW.	9·7	Scud moving rapidly.
	1	0	29·457	49·3	47·1	5·0	3·0	SW.	SW.	9·0	Scud : cirrous clouds.
	2	0	29·448	50·5	47·4	7·0	3·0	SW.		1·5	Id. : id.
	3	0	29·431	49·4	47·1	3·8	2·8	SW.		8·0	Heavy rain : sky to N.
	4	0	29·402	48·6	45·4	4·5	3·3	SW.		1·5	Cumuli on horizon.
	5	0	29·404	47·9	45·1	3·5	1·5	SW.		10·0	Scud : light rain.
	6	0	29·392	46·4	43·7	2·5	1·5			10·0	Id. : dark.
	7	0	29·384	44·6	42·8	2·3	1·3			2·0	
	8	0	29·354	44·8	42·5	5·5	2·0	SW.		8·0	Sky near horizon.
	9	0	29·334	44·6	41·7	2·5	2·0			7·0	Scud.
	10	0	29·303	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]

REMARKS ON THE WEATHER.

MAY—DECEMBER, 1842.

MAY.

d h d h

1 20—2 5. 20^h. Clouds beginning to break. 23^h. Sky milky: a few cirro-strati to S. 2^h. Cumuli, separated into distinct masses. 5^h. Cumuli, principally on W. and NW. horizon.

2 20—3 5. 20^h. Sky milky in E., almost becoming cirro-strati. 23^h. Detached cumuli rising in SE.: fine bands of cirro-cumuli stretching from S by E to NW., forming arcs of large radius. 2^h. Large masses of cumuli rising from S.E: extremely hazy to SE. 3^h. The upper strata of cumuli separating from each other approach nearer and nearer the zenith, each cumulus having a cirrous tail, which first points W., then NNW.: large masses of cumuli from the E. hurrying past to NNW., while the cirro-cumuli are slowly progressing across the zenith to ENE. 5^h. Cumuli, looking very electric, small spaces of milky blue seen between.

3 20—4 5. 20^h. Heavy black cumuli. 23^h. Sky seen in NW. 2^h. Heavy detached cumuli. 5^h. Cumuli round horizon: a few linear cirri.

4 20—5 8. 20^h. Light drizzle of rain. 23^h. Cumuli, tendency to open in SE. 2^h. Masses of black clouds. 8^h. Light rain.

5 20—6 8. 20^h. A small opening in SE. by E. 23^h. Cumuli and scud: heavy shower. 2^h. Detached cumuli and scud. 5^h. Black cumuli and scud. 8^h. Rain.

6 20—7 5. 20^h. Cumuli and scud. 23^h—2^h. Heavy rain. 5^h. Heavy rain: clouds moving rapidly: occasional pieces of sky.

8 20—9 5. 20^h. Sky in N. and W. horizon: cumuli, &c.: linear cirri above stationary. 23^h—5^h. Cumuli.

9 20—10 5. 20^h. A few linear cirri to E. 23^h. Detached cumuli, principally to SE. 2^h—5^h. Cumuli.

10 20—11 5. 20^h. Sky mostly covered with diffuse cirri: a few cirro-strati: the wind does not extend to the cirri: one or two diffuse cumuli, rising from S. and SW. 23^h. Two-tenths of the sky covered with cirro-cumuli: four-tenths cumuli: and one-tenth thin cirri. 2^h. Electric-looking cumuli lowest: diffuse cirro-cumuli above stationary: linear cirri highest: stationary. 5^h. A heavy shower of rain.

11 20—12 5. 20^h. A smart shower, raining from 20^h till 23^h. 2^h. Heavy cumuli, moving very slowly: diffuse cirri above stationary. 5^h. Cumuli.

12 20—13 5. 20^h. Principally cirro-cumuli: a few connected ranges of cumuli: to the North the ill-defined cirro-cumuli form a great bay, almost half an ellipse; there is a portion of a similar bay to the S. of W. 23^h. Diffuse cirro-cumuli: the sky almost covered with a haze: a few cirro-strati: one or two cumuli rising. 2^h. Irregular cirro-cumuli: masses of cumuli rising from S., SE., and SW., proceeding slowly towards NW.: sky very hazy: the sun projects a faint shadow. 5^h. A few cumuli below quite detached: like buttermilk above, and in many places like that liquid agitated.

13 20—14 5. 20^h. Clouds motionless: a large kind of flaky cirro-cumuli: the sky covered with haze, in some places approaching to cirrus, towards the East it is quite milky: the sun projects a faint shadow. 23^h. Cumuli round horizon, excepting about E., where there is a dense haze: the whole sky is very milky: the sun projecting a moderately dark shadow: occasionally a puff of wind. 5^h. Sky covered with haze: no clouds.

15 20—16 5. Sky not so milky as on the last three days. 23^h. A few cumuli on NNW. horizon, and a few patches of cirri. 2^h. Cumuli on WNW. and SSE. horizon. 5^h. Cumuli on S. horizon.

16 20—17 5. 20^h. Overcast. 23^h. Cumuli, disappearing rapidly. 2^h. Very detached cumuli round horizon: a mass of cirri to N., with the concave side to SW.: faint linear cirri, &c. over the sky. 5^h. Cirri, principally to S., with the concave side to NW.

17 20—18 5. 20^h. Overcast. 23^h. Cumuli in the zenith, about four-tenths of ill-defined cirro-cumuli: sky hazy: clouds breaking. 2^h. Principally cumuli, and a few cirro-strati on horizon: a few patches of ill-defined cirro-cumuli in zenith. 5^h. Ranges of cumuli round horizon from SE. round by S. to NE.: a few patches of cirro-cumuli.

18 20—19 5. Overcast throughout the day.

19 20—20 5. 20^h. Cumuli: mixed and linear cirri to N., and in zenith. 23^h. Cumuli much dispersed: cirri above stationary. 2^h. Principally heavy cumuli rising in S., proceeding North, looking very electric in S. and E. 5^h. Cumuli and nimbi: rain to E. and S.

20 20—21 5. 20^h. A few cumuli: large diffuse cirro-cumuli stationary. 23^h. Cumuli: a few patches of sky to N. 2^h. Cumuli. 5^h. Overcast.

The column "Species of Clouds, &c." in the Meteorological Observations after May 1. 1842, is an abstract of the Remarks given here, which are frequently too lengthy to have been printed along with the other Meteorological Observations.

MAY.

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22 20—23 5. 20^{h}. A smart shower beginning to fall. 23^{h}. Heavy rain began at 22^{h} 45^{m}. 2^{h}. Cumuli, principally on horizon. 5^{h}. Cumuli.

23 20—24 5. 20^{h}. Cirri and cirro-strati: a few cumuli appearing to SE. 23^{h}. Principally cumuli round N. horizon, with large black watery looking masses rising from S.: sky quite covered with a dense haze: the sun projects only a faint shadow: a few clouds like cirro-strati to S. and E. 2^{h}. Overcast. 5^{h}. Like cirro-strati, with cumuli near horizon, calm, all as if arrested in their progress.

24 20—25 5. 20^{h}. Overcast. 23^{h}. Cumuli: clouds opening to S. 2^{h}. Cumuli: linear cirri above stationary: clouds looking electric. 5^{h}. Sky covered with nimbi: loud thunder: brilliant flashes of lightning, followed by heavy rain: quite dark to S.

25 20—26 5. 20^{h}. A dense mist lies over the ground. 23^{h}. Heavy black cumuli: clouds still looking electric. 2^{h}. Cumuli moving from S., and lying in thick ranges round horizon. 5^{h}. Black cumuli: sky to NW.

26 20—27 5. 20^{h}. Overcast: foggy. 23^{h}. Dark cumuli: a speck of blue to NE. 2^{h}. Cumuli: beautiful ranges of cumuli round horizon: the sky in patches here and there. 5^{h}. Cumuli in ranges round horizon: beautiful vertebrated cirri lying from SW. across E. of zenith to NE.; the lines of cirri beautifully fine, like some woven wool; these appear stationary, or nearly so, while a lower current carries parallel flocks of cirri moving to NE., but lying at right angles to the direction of the others, thus giving the appearance of vertebræ.

27 10—28 9. 10^{h}. Cirri and cirro-strati. 11^{h}. Principally linear cirri to N. pointing NNE. 12^{h}. The same directed to N. 13^{h}. The same radiating from N. 14^{h}. The same moving off to E. 16^{h}. Cirro-strati and cirri. 17^{h}. Cirro-strati to E. 18^{h}—19^{h}. Clear. 20^{h}. Overcast: light breeze. 21^{h}. Clearing: still cloudy: wind as before. 23^{h}—2^{h}. Cumuli. 3^{h}. Cumuli in ranges round horizon. 4^{h}—5^{h}. Cumuli, &c. on horizon. 6^{h}. Cumuli and cirro-strati. 7^{h}. Cumulo-strati and cirro-strati. 8^{h}. Cirro-strati over two-tenths of sky, cumuli one-tenth.

29 20—30 5. 20^{h}. Watery looking cumuli rising from SW. and creeping across to NE.: cirro-strati and cirro-cumuli to NE.: very rainy like to SE. 23^{h}. As at 20^{h}, a few specks of cirro-cumuli. 2^{h}. Cumuli and nimbi: showers going round: masses of feathery cirri stationary. 5^{h}. Cumuli and nimbi: a light shower passing.

30 20—31 5. 20^{h}—23^{h}. Cumuli. 2^{h}. Cumuli: a few fine linear cirri above. 5^{h}. Watery looking cumuli.

31 20—31 23. 20^{h}. Beginning to break: cirri and cirro-strati. 23^{h}. Cumuli and linear cirri.

JUNE.

1 2—1 5. 2^{h}. Cumuli. 5^{h}. Scud: light showers passing over.

1 20—2 5. 20^{h}. Cirri to E.: a few detached specks of cumuli rising from SE. 23^{h}. Cumuli, with a few reticulated and other cirri, all moving slowly. 2^{h}. Cumuli scattered over the whole sky: a few cirri. 5^{h}. Detached cumuli: a few cirri.

2 20—3 5. 20^{h}. Clear. 23^{h}. Cirro-strati edged with cirri and cirro-cumuli: a few cumuli. 2^{h}. Cumuli. 5^{h}. Cumuli and a few diffuse cirri.

3 20—4 5. 20^{h}. Cirri nearly linear, proceeding from large cirrous nests: a few specks of cirro-cumuli. 23^{h}. Detached cumuli: mixed and linear cirri and cirro-cumuli above. 2^{h}. Cumuli near horizon to S. and E.: sky to N. and W., covered with cirrous haze: cirro-strati and cirro-cumuli. 5^{h}. Clouds and haze, the sun's rays appear through the haze so as to cast a faint shadow.

5 20—6 5. 20^{h}. Breaking to E. 23^{h}. Diffuse cumuli. 5^{h}. Cumuli.

6 20—7 5. 20^{h}. Thick mist: trees definable at about half-a-mile distant. 23^{h}. Cirri: a few cumuli to S. 2^{h}. Cumuli: sky nearly covered with cirrous haze. 5^{h}. Cumuli: sky still hazy, but cirri less distinct.

7 20—8 5. 20^{h}. A few specks of ill-defined cirri to SW. 23^{h}. Cirro-cumuli and linear cirri. 2^{h}. A few detached specks of small cumuli, with a streak of cirro-stratus. 5^{h}. Gusty.

8 20—9 5. 20^{h}. Heavy mist: trees definable at about ¼ of a mile. 23^{h}. A few faint streaks of cirri to S. and SE. 2^{h}. A speck or two of cirrus to SW. 5^{h}. Sky on horizon brownish, about 10° altitude, milky, and so up gradually to the deep blue of the zenith.

9 20—10 5. 20^{h}. Principally linear cirri to NE. and SE. 23^{h}. Chiefly cumuli from S., round by E. to N., edges ragged: nests of cirri. 2^{h}. From NE. to SE. horizon a mass of ill-defined, flat, watery-

JUNE.

looking clouds, from which flaky patches rise and are carried to SW. 5^{h}. Scud covered the sky within an hour.

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10 20—11 5. 20^{h}. Overcast. 23^{h}. Indefinable mass. 2^{h}—5^{h}. Clear.

12 20—13 5. 20^{h}. Vapoury cumuli. 23^{h}. Clear. 2^{h}. Cirro-strati to N. and S.: cumulo-strati to S. 5^{h}. Principally cumuli to S., and cumulo-strati to N.

13 20—14 5. 20^{h}. Overcast: light mist. 23^{h}. Cumuli and cirro-cumuli, with cirro-strati: hazy to E. and N. 2^{h}. Cumuli and cirro-strati: sky hazy: clouds looking electric. 5^{h}. Cumuli: sky in small patches.

14 20—15 5. 20^{h}. Cumuli and cirri: sky to N. 23^{h}. Detached cumuli two-tenths: cirri two-tenths. 2^{h}. Cumuli to S.: cirro-strati to N.: 5^{h} Cumulo-strati and diffuse cirri.

15 20—16 5. 20^{h}. Cumuli to S.: cirro-strati to N. 23^{h}. Very ragged cumuli. 2^{h}. Watery-looking cumuli: sky to NE. 5^{h}. Cumuli and cirro-strati.

16 20—17 5. 20^{h}. Cumuli: cirri: breaking. 23^{h}. Cumuli and cirro-strati. 2^{h}. Cumuli. 5^{h}. Cumuli: a few cirri.

17 20—18 5. 20^{h}. Cumuli and cirro-strati: a few streaks of blue. 23^{h}. Cumuli and diffuse cirro-cumuli and cirro-strati: very watery-looking cumuli sailing very low. 2^{h}. Heavy masses of cumuli moving from SW.: cirro-strati and cumuli above. 5^{h}. Heavy black cumuli: cirro-cumuli above stationary.

19 20—20 5. 20^{h}. Quite overcast: clouds apparently moving from about SE.: a few drops of rain. 23^{h}. Light showers. 2^{h}. Cumuli and nimbi: cirro-cumuli above stationary. 5^{h}. Watery cumuli or scud: pitch black to S.: electric looking to E.: cirro-strati above scud to E. stationary.

20 20—21 9. 20^{h}. Scud and nimbi. 9^{h} 30^{m}. Cumuli and nimbi: cirro-cumuli above stationary. 23^{h}—0^{h}. Cumuli and nimbi: cirro-cumuli and cirro-strati: passing showers at 0^{h}. 1^{h}. Cumuli and nimbi moving from SSW.: pinnacled cumuli to N.: cirri, &c. above stationary. 2^{h}—3^{h}. Beautifully pinnacled cumuli and nimbi: cirri above stationary: looking very electric to NE.: clouds near horizon dark blue, rising gradually to cumuli of the most brilliant white. 4^{h} 0^{m}. Cumuli and nimbi: thunder and lightning at about 4^{s} of interval: heavy rain; drops very large when they first fell, making a circular spot of from 1 to 1½ inch in diameter: hail also about ¼ inch in diameter: lower stratum of clouds moving from about E by N.; upper from SSW.; cirri above stationary; above the upper nimbi there appears a kind of cirrous mass moving slowly in the same direction. 4^{h} 10^{m}. The lower stratum appears to move from SE.: storm appears most violent to SW. and W.: very loud peals of thunder: a long chain of nimbi appears to move in a circle, commencing about NE., and going round by S. to NW. 4^{h} 15^{m}. The lowest stratum appears to carry the other with it, the hazy cirrous mass still moving, however, to NE.: to the SSW. large masses of white cumuli are occasionally seen through the nimbi, and have a beautiful mezzotint appearance through the rain; they appear stationary. 4^{h} 20^{m}—30^{m}. To the E. masses of cirro-strati are seen: the storm moves off to NW., the lightning is seen very well in that quarter, long forked flashes, extending sometimes from SSW. to NNW. 5^{h}. Storm moved off to NW., and again brewing in SE., where large dark masses of nimbi are seen rising in the white cirrous haze which covers that part of the sky: light rain: distant thunder. 6^{h}. Almost an entire mass of nimbi: loud peals of thunder, principally from SSE.: rather heavy rain: thunder about 8^{s} after lightning. 7^{h} 5^{m}. Clouds more in masses than last hour: nimbi: distant thunder, apparently to SE. and SSW., and thence to N. 8^{h} 15^{m}. Nimbi, &c. still more broken than last hour: small portion of sky seen in zenith: round the horizon there is that settled appearance so common after a thunder-storm, all the clouds at rest as if becalmed in a moment, and spreading in the lightest tints like yew-tree branches. 8^{h} 45^{m}—55^{m}. Nimbi moving from SE., raining heavily there: a low mass of diffuse cumuli, breaking into a kind of cirro-cumulus, moves slowly from SW. to NE.

21 20—22 7. 20^{h}. Linear cirri: cirro-strati and cumulo-strati stationary: round horizon from N. to SE. detached masses of watery-edged cumuli. 21^{h}. As at 20^{h}, with more cumuli rising. 23^{h}. Cumuli: streaks of cirri round the zenith, crossing at right angles, and pointing NE. and NW.: thin-laced cirri covers four-tenths of the sky. 0^{h} 5^{m}. Cumuli 7 parts; reticulated cirri 2. 2^{h}. Cumuli: very scattered streaks of cirrus, seen principally to S. 3^{h}. Cumuli: cirrous haze to S.: fibrous cirri to E., pointing WNW. 5^{h}. Cumuli moved off to N.; a few to S.: the greater part of the sky covered with very thick cirrous haze (very thick to E.) and cirro-cumuli. 6^{h} 40^{m}. A few cumuli round horizon: remainder of the sky covered with common and linear cirri lying in all directions, the greater part having their origin to SE., and lying in a sort of curl towards E.

22 7—23 9. 10^{h}. Linear cirri to NE., and cumuli to S., cirro-strati to NE. 11^{h}. Clouds on horizon: clear

JUNE

overhead. 12^{h}. Cumuli to S. 13^{h}. Principally large cirro-cumuli. 15^{h}. Linear cirri, chiefly to E. 16^{h}. Linear cirri and pure cirri having the concave side to S. 17^{h}. Linear cirri to E. 2^{h}. Cumuli principally on horizon: cirri. 3^{h}. Cumuli round horizon, but principally cirri scattered over the sky: thick cirrous haze to S. and SW. 4^{h}. Cumuli on horizon: remainder of the sky covered with cirrous haze: very thick to S. and SE.: the sun's rays scarcely penetrate.
d h d h 6^{h}. Cumuli. 8^{h}—9^{h}. Scud.

23 20—24 5. 20^{h}. Cumuli moving quickly: sky very hazy to E.: linear cirri to S. stationary: some of the cumuli very low. 23^{h}. Cumuli and haze: linear cirri above: clouds watery and electric-looking: a few drops of rain. 2^{h}—5^{h}. Cumuli moving rapidly: linear cirri: cirro-cumuli and cirro-strati above stationary: cirrous haze to SSW. rising with cumuli.

24 20—25 5. 20^{h}. Cumuli in different strata: cirro-cumuli. 23^{h}. Scud. 2^{h}. Scud: light rain. 5^{h}. Heavy rain.

25 —26. (Sunday). The wind changed in the morning from SW.: wind very strong on Saturday night and Sunday.

26 20—27 8. 20^{h}. Small watery ragged cumuli moving quickly: a long compact body of cirro-cumuli over two-tenths of the sky. 23^{h}—2^{h}. Cumuli. 5^{h}. Cumuli, some of them spinning out into cirri and beautiful cirro-cumuli, which, in some places, are formed of little mats of cirrus, fining off to the edge, so as to become mottled or waved cirri: to the E. is one mass of cirrus, in which the lines lie NW. and SE., in other places, to the S. and W. it gets quite thick, so that the separation can scarcely be distinguished. $8^{h}\ 20^{m}$—25^{m}. Most beautiful cirro-cumuli here and there in thick masses, fine near the edges, with bright blue between, all radiating from NW. to zenith, and from SE. where they almost become cumuli.

27 20—28 8. 20^{h}. Scud: light rain. 23^{h}. Scud. 5^{h}. Smart shower. $8^{h}\ 30^{m}$. Masses of scud moving very rapidly from SW., shewing occasionally speckled or frosted-looking cirro-cumuli above stationary.

28 20—29 8. 20^{h}. Ragged cumuli or scud very low and moving quickly: cirro-cumuli and cumuli above. 23^{h}. Scud and cumuli moving quickly: cumuli on horizon: linear cirri in zenith either stationary or moving very slowly. 2^{h}. Scud. 5^{h}. Cumuli and scud: long streaks of cirri pointing E. and then S.: clouds electric-looking to E.: the quantity of clouds variable. $8^{h}\ 35^{m}$. Watery-looking scud edged with cirro-cumuli: large dense masses of cirro-stratus: cirri to S.: the clouds extend far, having large open spaces within: many of the clouds like large masses of cedar branches.

29 20—30 5. 20^{h}. Cumuli creeping along horizon from W.: linear cirri above cumuli pointing E.: many patches of watery cumuli rising from about W., pass over near the zenith moving towards ESE.; when they approach the meridian they break up into cirrous edges, as if the mass were unravelling itself, and then they get quite detached, some parts appearing motionless, some moving quicker than others, and often taking very different directions, some proceeding nearly to E., others moving off to S. or SSE., till at last they are altogether dissipated; to the SE. patches are occasionally seen forming just as the others vanish; the clouds near the horizon do not appear to pass through this change. 23^{h}. Cumuli, which appear to move from NW. or NNW., but there still appears to be two currents, the upper from about W., and the lower from about N; when near the meridian there is the same tendency to dissipate. 2^{h}. Cumuli: the sky hazy: some of the cumuli very ragged. 5^{h}. Cumuli: cirrous haze.

30 20—30 23. 20^{h}. Cumuli and cirro-cumuli: linear cirri to NE. 23^{h}. Cumuli: hazy to E.: clouds moving very slowly.

JULY.

1 2—1 5. 2^{h}. Clouds and haze: cumuli very hazy to E. and S.: electric-looking. 5^{h}. Clouds and haze: thick cirrous haze to W. and S.: cumuli and cirri: low clouds, like patches of scud moving slowly: very black to E.: haze so thick to W. that the sun's rays scarcely project a shadow; his rays appear like fine cirri in the cirrous haze; some portions of the cirri might be termed etched, from their scratchy appearanee.

1 20—2 5. 20^{h}. Cirri and nimbi: light rain. 23^{h}. Cumuli and nimbi. 2^{h}. Cumuli and nimbi: rain: small patches of sky. 5^{h}. Cumuli and cirro-cumuli.

3 20—4 5. 20^{h}—2^{h}. Scud. 5^{h}. A kind of thick haze and cumuli on horizon.

4 20—5 5. 20^{h}. Nimbi and cumuli: other clouds above: light rain. 23^{h}. Cumuli: nimbi and scud: a few patches of sky: immense masses of clouds moving rapidly from about SW.: light rain. 2^{h}. Watery

JULY.

cumuli: cirri and masses of thick cirro-strata above: to the SE. is a large hazy mass of clouds which becomes almost cirrous on the edges, and is cumuli on the top. 5^h. Cumuli moving rapidly: linear cirri above stationary.

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5 20—6 5. 20^h. The sky covered with a thick cirrous haze, through which a few patches of sky are seen to W.: to the NE. dark cirro-cumuli are seen below the haze, and linear cirri here and there: a few specks of scud or loose cumuli rise from about NNW., and mostly creep along the S. horizon; a few along the N. horizon; the haze and other clouds appear stationary. 23^h. A great portion of the clouds are patches of cirrous haze; there are also cirro-cumuli, linear cirri, scud and cumuli. 2^h. Principally ragged cumuli: linear cirri above: hazy cirri to N. and E. 5^h. Cumuli: a few linear cirri to NE.

6 20—7 9. 20^h. A confused mixture, apparently breaking to E. 23^h. Sky covered with a thick cirrous haze: quite milky: cumuli on E. and N. horizon. 2^h. Haze as before, but more cumuli; the sun projects a faint shadow. 5^h. Scud and haze: rain. $8^h\ 45^m$. Clouds like puddledock: occasional showers.

7 20—8 5. 20^h. Cirro-cumuli: large masses of ragged cumuli rising from SW.: linear cirri to N. 23^h. Cirro-cumuli moving slowly: immense piles of cumulo-strati of great length: dark to SSW., where there appears the nucleus of a storm: patches of scud with the cumuli. 2^h. Cumuli and nimbi rising from SSW.: occasional showers. 5^h. Cumuli, nimbi, and cirrous haze: clearing to S.: occasional smart showers.

8 20—9 5. 20^h. Large masses of watery cumuli rolling along slowly: in the E. the rounded masses are inclined to the horizon at an angle of 45°, and have a most picturesque appearance: cirro-cumuli seen above: a few patches of sky. $20^h\ 10^m$. Clouds 9·5. 23^h. Large masses of cumuli below, while there is a large kind of cirro-cumuli above: the cumuli have great fantastic forms, and are much in ranges: patches of sky. 2^h. Cumuli and large cirro-cumuli: cumuli in ranges round horizon: about an hour ago beautiful cirro-cumulo-strati were seen. 5^h. Cumuli, with large cirro-cumuli and cirro-strati round horizon; the cumuli are lowest and move quickly, the others are stationary.

10 20—11 5. 20^h. Scud: heavy rain: on the evening of the 10th scud was moving from about W., the lower current being more rapid than the upper. 23^h—2^h. Scud: heavy rain. 5^h. Cumuli and scud: clouds more broken: a little sky in zenith: showers lately: the air feels warm.

11 20—12 5. 20^h. Cirri and cirro-strati to E.: the cirri are on the border of the mass of cirro-strati, and in some places look like foam on a wave; they have their concavity towards the S.: watery-looking cumuli rising from NNW. 23^h. Cumuli. 2^h. Cumuli: clouds in detached masses over the whole sky. 5^h. Cumuli, principally on horizon: a few linear cirri to E.

12 20—13 5. 20^h. Cumuli and scud: rain: sunshine half-an-hour ago. 23^h. Loose cumuli and nimbi moving quickly: cirro-cumuli above: showers around. 2^h. Cumuli and scud: cirri and cirrous haze above. 5^h. Cumuli and scud.

13 20—14 5. 20^h. Cumuli and scud: linear cirri and cirro-strati to N. and S. 23^h. Ragged cumuli and cirrous haze. 2^h—5^h. Cumuli.

14 20—15 10. 20^h. Hazy cirri to N., E., and S.: cirro-cumuli and cirro-strati to W.: two or three masses of ragged cumuli. 23^h. Chiefly linear cirri spread in all directions, almost becoming haze to N. and E.: cirro-cumuli and cumuli moving slowly. 2^h. Cumuli: woolly cirro-cumuli and cirri: fish-backed cirro-strati. 5^h. Flat cirrous-edged cumuli moving very slowly from about WNW. $9^h\ 35^m$. Strange looking grey cirro-cumuli creeping up from SW. near to the zenith, and E. and W. of it, sending out small ragged creepers, like the branches of a weeping willow; the sky to the S. of the zenith is quite covered with this, which becomes quite thick to S., and like irregular cirro-cumuli at 45° alt.

15 20—16 5. 20^h. Clear: a small patch of linear cirrus to W.: hazy to E. 23^h. Cumuli dispersed over the sky, except to N., from which a compact mass extends to ESE. 2^h. Cirrous masses, from which the cirri diverge in all directions; the greatest mass is to NW. 5^h. Cirri in fantastic forms, springing from a thick nucleus to W., and tossed out in all directions; there is a long feather of cirrus extending 25° to 30°: linear cirri to SW.

17 20—18 9. 20^h. Sky covered with cirrous haze and linear cirri, which appear stationary, while masses of loose cumuli or scud moving slowly from about E. cover seven-tenths of the sky; the sun's rays just project a faint shadow on paper; the sky was covered by a confused mixture of cirri on the 17th. 23^h. Cirrous haze and cirro-strati as before, but more cumuli or scud; the haze seen through the openings. 2^h. Cirrous haze as before: cumuli and cumulo-strati. 5^h. Less haze: a few cirro-

JULY.

cumuli, but the greater part of the sky is covered by scud and cumuli. 8^{h} 40^{m}. Seven-tenths of the sky covered with dark heavy clouds like nimbi (but no rain), moving from ESE., while in the higher strata are cirro-cumuli and linear cirri stationary; the cirrus becomes like thick cobwebs to W., while it is quite black to S.: scud below, which appears to move quickest: wind increasing.

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18 20—19 5. 20^{h}. Scud. 23^{h}. Scud, clouds very thick: wind more in gusts. 2^{h}. Scud moving rapidly from ENE.: cirro-cumuli above moving slowly in the same direction. 5^{h}. Scud: occasional patches of sky.

19 20—20 5. 20^{h}. Light mist, tendency to drizzle. 23^{h}—5^{h}. Clouds moving from NE. 5^{h}. Light drizzle.

20 10—20 23. 11^{h}. Breaking to N., where there are considerable patches of sky. 17^{h}. Cirro-cumuli. 18^{h}. Cirro-cumuli and linear cirri. 19^{h}. Loose cumuli and a few linear cirri to N. 20^{h}. Cumuli: haze on SE. horizon. 23^{h}. Loose cumuli moving from N by E., and another current from ENE., a few cirro-cumuli above, apparently stationary.

21 0—21 10. 0^{h}.—2^{h}. Loose cumuli. 3^{h}. Cumuli and scud, some with cirrous fringes; one current carries clouds from N by E., and another from NNW. 4^{h}. Loose Cumuli. 9^{h}. From N. to SE., one thick pile of craggy cumuli, lighted by the setting sun, giving all the appearance of snowy Alps tinted by his glowing rays. 10^{h}. Large mass of loose cumuli moving from about NNE.

21 20—22 5. 20^{h}. A mass of loose cumuli: sky to NW. 23^{h}. Loose cumuli: sky principally to NW. 2^{h}. Loose cumuli, better defined than before. 5^{h}. Detached cumuli to SE.

22 20—23 5. 20^{h}. Undefinable mass. 23^{h}. Clear. 2^{h}. A few specks of cumuli to SE. and N. 5^{h}. Detached cumuli to S. and N.

24 20—25 5. 20^{h}. Flaky cumuli. 23^{h}. Cumuli: patches of hazy sky. 2^{h}. Cumuli: sky hazy. 5^{h}. Cumuli, &c., hazy.

25 20—26 5. 20^{h}. Loose cumuli on horizon: large cirro-cumuli above and in zenith: clouds breaking. 23^{h}. Heavy dark cumuli looking electric to SE.: upper clouds moving very slowly from about NNE.; lower current rather quicker from SSE. 2^{h}. Heavy black cumuli from about SE.: upper current from W.: white towering masses of cumuli: a few drops of rain. 5^{h}. Cumuli and cirro-cumuli, the latter principally to E.: light shower since last observation.

26 20—27 5. 20^{h}. Loose cumuli and cirro-cumuli: linear and other cirri and cirrous haze to N. 23^{h}. Very like an approaching storm: a mixture of cirri and cirrous haze: loose and well defined cumuli; the cumuli are seen as if at rest in the bluish gray mass to E. and W.; the sky has altogether an indescribable appearance. 5^{h}. Nimbi and more heavy black cumuli: rain to E.: scud creeping up slowly from W.: cumuli and cirri to N.: wind just sprung up: a patch of sky to N.

27 20—28 5. 20^{h}. A sort of blackish-blue mixture, in some places like cedar branches: a few cumuli seen: a few drops of rain: scud lowest, moving from about NNW. 23^{h}. Nearly as before: more long strings of loose cumuli floating from W.: clouds to NE. lying in all directions: occasional patches of sky. 2^{h}. More muddled than before. 5^{h}. Cumuli principally to E.: patches of cirrous haze or cirro-stratus edged with cirri: looking stormy to E.: at 4^{h} the clouds moving from E., and a smart shower of rain.

28 20—29 7. 20^{h}. Loose cumuli, quantity variable. 23^{h}. Heavy loose cumuli: linear cirri above: breaking to N. 2^{h}. Cumuli: linear and woolly cirri above, both moving from N. 5^{h}. Ragged edged cumuli: cumulo-strati to N. 6^{h} 45^{m}. Quantity of clouds 5·5: a kind of cirro-cumulous cirri; the cirri are all matted and frizzled, moving from N., but having a sort of lee-way from E.: a lower current from W. carries a mass of smoky cirrous scud, which appears to have a lee-way to S.: masses of cirro-strati rising from SW.: on the NE. and SE. horizon are beautiful cumuli and cumulo-strati.

29 20—30 5. 20^{h}. Three-tenths of cumuli to E.: four-tenths of fine cirri in zenith and to W.: a few cirri to SW., apparently moving from W., the other clouds moving from N. 23^{h}. Rather loose-edged cumuli. 2^{h}. As before: a kind of snowy cirri above: sky in patches. 5^{h}. As before: patches of cirrous haze: very thick in zenith and to S.: sky principally on E. horizon, some to N.

31 20—31 23. 20^{h}. Linear cirri to N. and E. 23^{h}. Cumuli and linear cirri on horizon: small patches of loose cumuli moving from SSW. across the zenith.

AUGUST.

1 2—1 5. 2^{h}. Cumuli principally to E. and S., but moving across the zenith from SW. 5^{h}. Cumuli nearly as before.

AUGUST.

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1 20—2 5. 20^{h}. Sky covered with cirri: a few cumuli to N. 23^{h}. Haze and cumuli. 2^{h}. Sky hazy: clouds misty: cumuli. 5^{h}. Cirri: sky very hazy, especially on horizon: a few specks of cumuli to SE. and NE.

2 20—3 5. 20^{h}. Largest kind of cirro-cumuli. 23^{h}. Cumuli and cirro-cumuli: hazy to E. 2^{h}. Heavy black and white cumuli: scud below: a few drops of rain; very hazy to E.: a few cirri: electric and rainy-looking. 5^{h}. Cumuli and scud: haze on horizon: patches of hazy sky.

3 20—4 5. 20^{h}—23^{h}. Scud moving rapidly. 2^{h}. Cumuli and scud: sky in zenith. 5^{h}. Cumuli and scud: cirri above.

4 20—5 5. 20^{h}. Scud. 23^{h}. Scud: occasional patches of sky and gleams of sunshine: very light drizzle. 2^{h}. Scud: slight drizzle. 5^{h}. As at 2^{h}; the upper covering of clouds is a dim homogeneous gray: occasional patches of sky.

5 20—6 5. 20^{h}. Fine linear cirri radiating from SSW. and NNE.: mottled cirri to E. 23^{h}. Reticulated cirrus, which becomes cirrous haze to E.: loose cumuli and cumulo-strati below. 2^{h}. Detached cumuli round horizon: cirrous haze above. 5^{h}. Detached masses of cumuli: cirri and cirrous haze above; the cirri waved in all directions.

7 20—8 5. 20^{h}. Hazy: scud: clouds like cedar branches: very thick to E. 23^{h}. Loose cumuli or scud. 2^{h}—5^{h}. Heavy cumuli: very hazy to E.

8 20—9 5. 20^{h}. Scud: cumuli on E. horizon: hazy to E. 23^{h}. Loose cumuli moving quickly: woolly cirro-cumuli: linear cirri and cirrous haze. 2^{h}. As before; showers. 5^{h}. Linear and woolly cirri and cirrous haze over 6½ tenths: scattered cumuli.

9 20—10 5. 20^{h}. Hazy cirrous clouds: linear cirri: cirro-cumuli-strati and woolly cirro-cumuli. 23^{h}. Clouds scattered: as before, but a few small patches more nearly approaching to small cumuli. 2^{h}. Very hazy and electric-looking: haze and cumuli; the cumuli not much rounded and rather flat. 5^{h}. Nimbi: thunder, first heard about 2^{h} 30^{m} to the SSW., whence black cumuli arose; it gradually came nearer, moving along W. horizon: rain began to fall at 3^{h} 0^{m}, which has continued since; the storm has now worked round to NE. or E.; the flashes of lightning are not frequently seen; the storm appeared about 7^{h} to have ceased; it was, however, only a lull for an hour, when it again commenced more violently than ever, the lightning being often vivid; the distance of the thunder-clouds being from ½ of a mile to 5 miles. The magnets have been nearly stationary since the storm began; this fixedness of their positions during thunder-storms has been observed three times now.

10 20—11 5. 20^{h}. Scud. 23^{h}. Hazy clouds and loose cumuli, principally on horizon. 2^{h}. Loose cumuli moving quickly: linear cirri and loose cirro-cumuli above stationary. 5^{h}. Cumuli moving quickly: a few patches of matted cirri above, apparently stationary.

11 20—12 5. Scud. 20^{h}. Clouds moving quickly: to the E. there is a large bank of bluish-gray clouds stationary. 2^{h}. Sky on NE. horizon.

12 20—13 5. 20^{h}. Misty scud, very low and moving very quickly: a great quantity of matted and woolly cirrous clouds above; the scud is so thin that the cirrous clouds can be often seen through it. 23^{h}. Nearly as before, but the sky is more in detached patches. 2^{h}. Loose cumuli moving quickly: above are fine mottled, vertebrated, etched, reticulated, and hazy cirri. 5^{h}. Loose cumuli, as before, but more hazy: cirrous clouds and cumuli stationary: great banks of dense cirro-strati.

14 20—15 5. 20^{h}. Thin scud: pectinated cirri above; the fibres of the cirri pointing NNW. and E.; the cirri appear to have a sort of leeway to E. or SE.: a few cirro-cumuli. 23^{h}. Hazy and flame cirri, some pointing NW., and some pointing SW.: hazy cirri to NW., from which spring the greater portion of the flame cirri: a few cumuli on horizon, and scud rising from SW. 2^{h}. Cumuli: cirri above, lying in two directions; the flame cirri rising from WNW., and linear cirri pointing NNE. and NW.; the cirri are gathered together in some places into little foamy patches: very electric-looking to S.: frequently the quantity of clouds is only seven-tenths. 5^{h}. Cumuli and cirro-strati to W: thick cirrous haze and patches of scud to S. and SE.: cirri of various kinds to the E.: cirro-strati and piles of white cumuli beyond: haze and cirri lying in different directions: cirri lying chiefly from NE. to SW. and SE. to NW.: scud.

15 20—16 5. 20^{h}. Loose cumuli: a kind of cirro-cumuli above stationary. 23^{h}. Loose cumuli: sky on NE. horizon. 2^{h}. Loose cumuli, much detached and moving very slowly: sky all in little patches. 5^{h}. Scud: patches of sky on NE. horizon.

16 20—17 5. 20^{h}—23^{h}. Homogeneous: a tendency to break at 23^{h}. 2^{h}. A few patches of scud moving rather quickly: linear cirri above. 5^{h}. Cumuli: large cirro-cumuli and linear cirri.

AUGUST.

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17 20—18 5. 20^h. Cirrous haze: cumulo-strati and cirro-strati: loose cirro-cumuli. 23^h. Vertebrated cirro-cumuli, &c., pointing from S. to N. 2^h. Haze: cirri and cumuli: thermometer in the sun 106°·8. 5^h. Common and craggy cumuli: linear cirri pointing from W. to E.: cirrous haze: a few patches of scud.

18 20—19 5. 20^h. Loose cumuli: hazy above: thunder to E. before and after this time, and was also heard during the night. 23^h. Cirrous haze and linear cirri. 2^h. Haze: cumuli and rather large cirro-cumuli. 5^h. Haze: nearly homogeneous.

19 20—20 5. 20^h. Loose cumuli: cumuli on horizon: linear cirri. 23^h. Scud: a perceptible drizzle. 2^h. Haze: scud: dull grayish-blue appearance: stormy-like. 5^h. Haze and nimbi rising from SSW. like a fine sheet: clouds like cedar branches: slight drizzle.

21 20—22 5. 20^h. A kind of mottled gray mass, part of it like loose cirro-cumuli: sky on NW. horizon. 23^h. Cirro-cumuli, but not well-defined: in some places to N. the cirro-cumuli are like the rippled sand on the sea-shore, but are brownish on the ridges, and white in the hollows. 2^h. A very heterogeneous mixture, small patches of the sky here and there. 5^h. Nearly as before, but denser.

22 20—23 5. 20^h—23^h. A few loose detached cumuli: linear cirri. 2^h. Woolly cirro-cumuli of all sizes: cumuli: sky hazy near horizon; dense to S. and SE. 5^h. Cirro-cumuli lying in strata from SSW. to NNE., gathered in many places into dense nuclei; to the E. are long strata of clouds, probably cirro-strati, with rough edges, lying from SE. to NNE.: a few patches of black scud sailing low from about SSW., and lying in lines in that direction like the cirro-cumuli.

23 20—24 5. 20^h. Scud: light drizzle. 23^h. Like buttermilk agitated, all as if stationary; like cedar branches to N. 2^h. Nearly as before: occasionally light showers. 5^h. More broken than before: a few patches of sky: detached cumuli lying very low.

24 20—25 5. 20^h. A few linear cirri. 23^h. Loose cumuli: cumuli higher, moving much slower. 2^h. Cumuli. 5^h. Loose cumuli: linear cirri.

25 20—26 5. 20^h. Scud: various kinds of cirro-cumuli above: linear cirri here and there. 23^h. Loose cumuli: cirro-cumuli. 2^h. A few patches of scud moving from NE.: cumuli, &c. above, moving very slowly from about SSW. 5^h. Loose cumuli: cirro-cumuli.

26 10—27 10. 10^h—20^h. Scud. 21^h. Scud: a few patches of sky: cirro-cumuli seen above. 22^h. Scud: sky in patches. 2^h. Cumulous scud: cirro-cumuli above. 6^h. Loose cumuli and patches of scud, all nearly stationary. 7^h. As at 6^h: a few patches of etched scud lying low. 8^h. Loose cumuli: 9^h. Cirro-cumuli.

28 20—29 5. 20^h. Scud: light mist or drizzle: the vane pointing N. but no wind. 23^h. Loose cumuli moving rather quickly: sky in detached patches. 2^h. Cumuli. 5^h. Detached cumuli round horizon.

29 20—30 5. 20^h. Scud, like cedar branches to E. and N.: clouds above stationary. 22^h 10^m. The clouds are principally cirro-cumuli, lying in lines from S by W., with scud below moving from NE. 23^h 40^m. Haze clearing off, and a long line of ill-defined cirro-cumuli lying N. and S., and moving from S by W.: detached cumuli moving more slowly than before: haze in all parts of the sky, excepting the zenith: some clouds are moving from NNW. 0^h. Principally cirrous haze, about 1¼ tenths of cumuli: streaks of pure blue sky to E.: stormy-looking. 2^h. Haze, 2½ tenths of cumuli: the sun projects a visible shadow. 5^h. Diffuse cirro-cumuli and haze: watery-looking cumuli on horizon: sky appearing to W.

30 20—31 5. 20^h. Clear. 23^h. Detached cumuli, rather loose on the edges: linear cirri above. 2^h. Cumuli: linear cirri above, pointing first from WNW., then from W by S., moving from NW.: immense piles of white cumuli moving very slowly. 5^h. Sky principally covered with cirrous haze and linear cirri: cumuli moving very slowly: loose cumuli rising from SW., where it is very black: well-defined cumuli on NE. horizon.

31 20—31 23. Scud. 20^h. Other clouds above stationary. 23^h. Occasional showers.

SEPTEMBER.

1 2—1 8. 2^h. Scud: loose cumuli above moving slowly: linear cirri highest pointing from W by N. 5^h. Scud: cirrous haze, &c. above, stationary or moving very slowly. 8^h. The sky presents a very strange appearance: large dense masses of scud like smoke are creeping along N. and S. horizon from westward; thin fleecy masses of the same move quickly across the zenith from W.: near the NW., where the sun is setting, above the scud are masses of cirro-strati, tinged with white edges,

SEPTEMBER.

and seen in the dark grayish-blue beyond, with a patch or two of the brightest blue sky; the sky is just seen through the scud in the zenith and to E.; it is difficult to tell whether there is a bluish-gray cloud or only the sky seen through the scud: raining: about this time the ends of a double rainbow were seen.

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1 20—2 5. Scud. 5^h. Small patches of greenish sky to SSE.: some low patches of scud from SW.: drops of rain.

2 20—3 9. 20^h. Thin scud sailing very quickly; denser near horizon: ragged cirro-cumuli above moving very slowly; sky in zenith. 23^h—5^h. Scud: light rain at 5^h. 8^h 40^m. Three different currents of air observed at present; the highest carries loose patches of scud from W by S.; the next lower, larger and darker masses from NW by W.; and the lowest, thin vapoury patches of scud from NNE.; the direction of the wind at the surface is NNE ½ E. (SW. at 5^h.); the greatest mass of clouds is from NW by W.; the upper current is very slow; in a few minutes the lowest current nearly ceased, it was previously the swiftest: quantity of clouds 9·0.

4 20—5 5. 20^h. Linear cirri and cirrous haze: thin cirrous nests. 23^h. Scud, &c.: cirrous haze seen near horizon: clouds moving very slowly. 2^h. Thick scud. 5^h. Scud: other clouds above stationary, or nearly so.

5 20—6 5. 20^h. Scud: cirro-cumuli. 23^h. Loose cumuli and scud; the cumuli moving slowest. 2^h. Cumuli and scud. 5^h. Large mixed cirro-cumuli and cumuli: sky on NE. and NW. horizon, on the NE. it is light green; clouds black to SE.

6 20—7 5. 20^h. Linear cirri radiating across the whole sky in feathered masses from the W. point of the horizon; on the E. horizon the linear cirri lie N. and S. parallel to the horizon; the feathers of cirri extend from W. to 30° from E. 23^h. Loose cumuli moving slowly: cirro-strati higher, moving much slower: sky in patches: detached cumuli and cirrous haze on E. horizon. 2^h. Loose cumuli: cirrous haze and cirro-strati seen above stationary: sky in detached patches. 5^h. Thick cirrous haze, through which the sun scarcely projects a shadow: thick banks of dark clouds here and there: the clouds have a perceptible motion from S. by E.: stormy-looking.

7 20—8 5. 20^h—23^h. Scud: light rain. 2^h. Scud; the sun's rays penetrating some openings. 5^h. Loose cumuli and scud: linear cirri and cumuli above.

8 20—9 5. 20^h. Scud: homogeneous: light drizzle. 23^h. Scud. 2^h. Scud: cirro-cumuli: cirro-strati, like sheets of white paper to E.: dense cumuli round horizon. 5^h. Detached masses of scud or loose cumuli: pinnacled cumuli and other clouds above moving much slower: cirro-strati on horizon: very black to NW.

9 20—10 5. 20^h. Thin scud: cirro-cumuli above. 23^h. Scud: cumuli, &c. above. 2^h. Scud and cumuli: cirri like flames, radiating towards NW. and W. 5^h. Scud and loose cumuli: cirro-cumuli above, moving very slowly.

11 20—12 5. 20^h. Scud: cirrous haze near S. horizon; a few minutes before this the sky was overcast; clearing off rapidly from W.: thick and dull to E.: wind rising: in a few minutes the sky was again quite overcast. 23^h. Scud: sky on NW. and NE. horizon, where cumuli are rising. 2^h. Cumuli: cirrous haze on S. horizon. 5^h. Cumuli to W.: fine linear cirri, like pencils of the finest hairs, the root being to E., pointing E. and W., and reaching over 75° in length from E. to past the zenith; they are visible over the whole sky, lying quite parallel to each other, and apparently springing from a kind of reticulated cirrus, which forms a portion of the circumference of a circle, whose centre is in the E. and radius 20°; the roots of the cirri appear to move on this circumference, the cirri apparently describing a greater circle: cumuli moving slowly.

12 20—13 5. 20^h. Very thick; appearing to radiate from N. and S.: cirro-cumuli in the zenith, and thick cirro-strati to E. 23^h. Nearly homogeneous: some small patches of scud. 2^h—5^h. Large diffuse cirro-cumuli: specks of sky here and there: the sun's rays through the interstices of the cirro-cumuli project a faint shadow.

13 20—14 5. 20^h—23^h. Scud: nearly homogeneous: patches of sky at 20^h. 2^h. A strip of sky on NE. horizon. 5^h. Patches of sky to SE. and S.: cumuli on ESE. horizon.

14 20—15 5. 20^h. Thick mist, rendering trees invisible ¼ of a mile distant: large loose cirro-cumuli. 23^h. Cumuli and large cirro-cumuli; cumuli lower and moving quicker than the cirro-cumuli. 2^h. Loose-edged cumuli: sky in patches. 5^h. Very large cirro-cumuli: very black to NNW: sky seen between the cirro-cumuli.

15 20—16 5. 20^h. Cirro-cumulous scud: different kinds of cirro-cumuli above: linear cirri still higher. 23^h. Cirrous haze: scud and cumuli: linear cirri to E. with small patches of cirro-cumuli: the

SEPTEMBER.

sun's rays project a pretty distinct shadow. 2^h. Nearly as before: haze more above horizon: large cirro-cumuli; a few patches of sky. 5^h. Haze: linear cirri: cumuli.

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16 20—17 5. 20^h. Cumuli or scud: cumuli and cirro-cumuli to E., lying like islands in the ocean: haze on horizon. 23^h. Linear cirri generally becoming haze: scud moving rapidly: cumuli on horizon: the sky has a troubled appearance. 2^h. Scud: light rain. 5^h. Loose cumuli and cirro-cumuli from S by W.: cumulous scud, sailing low from W by S., and three times quicker than the clouds above; it is rather curious that the highest clouds move in the same direction as the wind on the surface, while the lower clouds are from W by S.; these motions are most evident, as the clouds are considerably detached.

18 20—19 5. 20^h—23^h. Scud. 2^h. Loose cumuli; the current from NNW. just disappeared, the upper current from WSW. 5^h. Cumuli and loose cirro-cumuli from SSE.

19 20—20 5. 20^h. Linear cirri to NE.: cirro-cumuli to W.: cumuli and scud to S. 23^h. Cumuli on horizon: cirrous haze on E. horizon. 2^h. Loose-edged cumuli: cirrous haze to E.: wind rising. 5^h. Detached cumuli moving slowly: linear cirri to NE.

20 19—20 23. 19^h. A homogeneous mass of clouds: light mist. 20^h. As at 19^h: heavy mist: rain at 20^h 30^m. 21^h. Clouds homogeneous: smart shower. 22^h. Scud; some patches moving very slowly from about N., some seen to S. moving nearly from W.: light rain. 23^h. Rain clouds: scud rising from about E. and N.: sky on E. and S. horizon: black to N.: smart shower: the sun shining through thin cirrous clouds: the rain clouds are not observed to move: the scud only appears to move from between N. and E.

21 0—21 23. 0^h. Low detached patches of scud rather quickly from NNW.: large cirro-cumuli to N., very slowly from about W.: cirrous clouds highest, and apparently stationary: cumuli on E. and N. horizon: the scud has two motions, the upper current from N., the lower from WNW., so that it has the appearance of foam on a whirlpool; in a few minutes some patches are moving from NNE.; these are the principal motions, but some patches are seen moving from SSE., and at 0^h 15^m some remain stationary. 1^h. Cumuli and scud, the latter from NNE., S.W., and WNW., the same eddying of the currents as at 0^h; they sometimes stop about the zenith and change their course; the lowest and most powerful current is from NNE. 2^h. Loose and other cumuli from about NE.: cumulo-strati on horizon. 3^h. Scud from S. and from N., but changing the direction every few minutes: cumuli round horizon; the principal motion is from S.; sometimes the upper clouds are from S., sometimes the lower; they are sometimes from E.: linear cirri to SW.: flame cirri highest, radiating and moving from S. to N. 4^h. Scud from N by E. and from NE.: cirro-cumuli above, very slowly from S. 5^h. Loose cirro-cumuli from NW., better defined and stationary above; some moving from SSE. slowly: cumuli round horizon, which to N. are gray and watery-looking. 6^h. Scud and large loose cirro-cumuli; the motions are so small, that it is impossible to determine them: cumuli round horizon. 6^h 30^m. Thin scud from NW.: thunder heard to S. 7^h. Cirro-cumuli in zenith: scud on horizon, motion very small, apparently from NE. 8^h. Principally cirro-cumuli. 9^h. Cirro-cumuli to E.: heavy cumuli to W.: clear on S. horizon. 10^h. Cirro-cumuli in zenith: cumuli on horizon: black to SW. 11^h—16^h. Scud and loose cirro-cumuli: cumuli on NE. horizon at 15^h. 17^h. Large cirro-cumuli and cumuli. 18^h. Scud: cirrous haze above. 19—20^h. Scud from NE. lowest, the highest from SSE.: several patches of sky seen, but covered with thin cirrous haze. 21^h. Principally cirrous haze: the sky has a film of linear cirri over it: a few patches of scud quickly from N. and very low. 22^h. Scud. 23^h. Heavy clouds on horizon: clouds breaking up.

22 0—22 10. 0^h. Heavy clouds on horizon: clouds breaking. 1^h—2^h. Principally cirrous haze: scud from N.: the sun's rays project a faint shadow. 3^h—4^h. Cirrous haze: scud and cumuli: a few drops of rain at 4^h. 5^h.—6^h. Rain. 7^h. Scud: light showers. 8^h. Ceased raining. 9^h. Smart shower. 10^h. Heavy rain.

22 20—23 5. 20^h. Scud: occasionally drops of rain: patches of sky. 23^h. Loose cumuli and scud, the scud lowest and quickest. 2^h. Scud: cumuli: cirrous-like clouds highest. 5^h. As at 23^h.

23 20—24 5. Scud. 20^h. Moderately heavy rain. 23^h. Heavy rain. 2^h. Breaking: wind just risen: occasional peeps of sky. 5^h. Large cirro-cumuli seen above the scud.

25 20—26 5. 20^h. Thin scud, which scarcely obscures the sky and the higher clouds: light rain. 23^h—2^h. Scud: dense fine rain (Scotch mist). 5^h. Scud: like buttermilk to N.: gray cumuli on N. horizon, moving along towards W.

26 20—27 5. 20^h. Scud and loose cumuli moving very slowly: sky to NW.: nimbi to E. 23^h. Loose

SEPTEMBER.

cumuli from NE by N.: another current from ENE., which appears to be edging round by S. 2^{h}. Loose cumuli from N by E., apparently another current from about E.: cumuli on E. horizon; sky there and in zenith. 5^{h}. Scud: loose cumuli.

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27 20—28 5. 20^{h}. Scud: clouds breaking. 23^{h}. Scud: light rain. 2^{h}. Scud: sky in zenith and to N. 5^{h}. Scud: cirro-cumuli.

28 20—29 5. 20^{h}. Loose cumuli. 23^{h}. Scud: sky to W. with cumuli: rain to E.: a smart shower in a few minutes. 2^{h}. Loose cumuli. 5^{h}. Well-defined and loose cumuli: scud very low: part of a rainbow to NE.

29 20—30 5. 20^{h}. Cirro-cumuli moving slowly from ENE., lying in a stratum from NNE. 23^{h}. Cumuli, detached and in ranges on horizon. 2^{h}. Loose cumuli moving slowly. 5^{h}. Loose and well-defined cumuli: cumulo-strati on horizon.

30 20—30 23. 20^{h}. A dense mass round horizon, like cirro-cumuli stratified on the edges: a long line of loose cirro-cumuli moving across the zenith; above this are patches of flame cirri. 23^{h}. Cumuli and large cirro-cumuli: sky to W., and through the interstices of the cirro-cumuli, which become quite thick to E.

OCTOBER.

1 2—1 5. 2^{h}. Scud, and two currents of loose cumuli. 5^{h}. Large cirro-cumuli.

2 20—3 5. 20^{h}. Thin scud: other clouds higher: sky to N. 23^{h}. Scud and loose cumuli: patches of sky to S. 2^{h}. Scud and a kind of cirrous haze: ragged cumuli: patches of sky to N. and S.: the sun projects a strong shadow through the haze. 5^{h}. Cumulo-strati and scud: linear cirri above all to S.

3 20—4 5. 20^{h}. A strip of cirro-stratus on NE. horizon; the ground covered with hoar-frost for two hours after this. 23^{h}. Detached cumuli to N., moving very slowly. 2^{h}. Detached bits of loose cumuli and a few linear cirri to S. 5^{h}. A few patches of cirro-stratus to S.: hazy on E. horizon.

4 20—5 5. 20^{h}. Scud: large cirro-cumuli, &c. above. 23^{h}. Large cirro-cumuli and cumuli. 2^{h}. Hazy scud. 5^{h}. Scud and loose cumuli: patches of sky round horizon: in some places to E. the sky is quite green: rain to NE. and E.

5 20—6 5. 20^{h}. A thin film of fine linear cirri over the whole sky: thick cirro-strati to SE. and E. 23^{h}. Nests of cirrus, flamed here and there, cover almost the whole sky, and move slowly from N.: detached cumuli below from NW. 2^{h}. Cirrous-edged cumuli: scud: a thin film of linear cirri over the sky: wind in gusts. 5^{h}. Scud: cirro-cumuli: cirrous haze.

6 20—7 5. 20^{h}. Fine cirri, becoming haze; in some places like great brushes, the hairs lying from WNW.: scud below. 23^{h}. Thin detached patches of scud: sky covered with a thin film of linear cirri; the cirri in some places gathered into nests like loose cirro-cumuli, becoming haze near the horizon. 2^{h}. As at 23^{h}; the scud in large masses. 5^{h}. Nearly as at 23^{h}; the cirrous nests lying in lines from WNW., and apparently moving from about NNW.; in some places like foam.

7 20—8 5. 20^{h}. Scud. 23^{h}. Large loose cirro-cumuli: quite thick towards the E.: sky at the interstices of the cirro-cumuli and to NW.: the clouds seem very high, and the vault has a more expansive appearance than usual: the clouds breaking up. 2^{h}. Detached patches of cumuli: fine linear and curled cirri pointing WNW.; the linear cirrus becomes haze near the horizon; in some places it is mottled, reticulated, and flamed; the cumuli becomes cumulo-strati on horizon. 5^{h}. Linear, mottled, and curled cirri, gathered into nests in some places, and becoming haze near the horizon.

9 20—10 5. 20^{h}. Scud: different kinds of cirrous clouds above. 23^{h}. Scud and loose cumuli; the portion that is considered sky is nearly covered with a fine film of linear and slightly pectinated cirri, pointing N. and S.; in some places it becomes haze. 2^{h}. Zigzag linear and mottled cirri: cirrous haze: a few patches of scud. 5^{h}. Nearly as at 2^{h}; the cirri becoming slightly hazy.

10 20—11 5. 20^{h}. Scud. 23^{h}. Linear cirri to N. and S., becoming haze to N., and lying E. and W.: a few patches of loose cumuli to N. 2^{h}. A thin film of cirrous haze to N.: linear cirri to S.: cumuli to E. 5^{h}. 1½ tenths of loose cumuli; the rest a kind of woolly cirro-cumuli: cirro-strati on horizon.

11 20—12 5. 20^{h}. Linear cirri, all to E.; some of the cirri like waves: it has been frost during the night, and there is still a little hoar-frost. 23^{h}. Cumuli to N.: different kinds of cirri over the sky. 2^{h}. Cirri of different kinds, principally linear and waved, like one side of a feather, the middle pointing WNW., and the fibres pointing SSW. 5^{h}. Chiefly woolly cirri, like large feathers, with the curl upwards: cirro-strati on N. horizon.

OCTOBER.

d h d h

12 20—13 5. 20^h. Linear cirri to NE.: a thick bank to E.: mist rising from the ground: the ground covered with hoar-frost. 23^h. Various kinds of cirrus. 2^h. Very fine linear cirri and other varieties. 5^h. Cirri of almost every kind, but chiefly linear; very thick to N.

13 20—14 5. 20^h. Scud, dropping the slightest possible rain: sky on NE. horizon. 23^h. Scud or loose cumuli: linear cirri above. 2^h. Loose-edged cumuli and cumulo-strati: woolly and linear cirri above. 5^h. Cirro-cumulous scud, becoming cirro-strati to E.: cirrous haze and linear cirri cover about three-tenths of the sky: large loose-edged cumuli rising in W.

14 20—15 5. 20^h. Cirro-cumulous scud assuming the form of cirro-strati to S. and E. 23^h. Detached patches of loose cumuli, the greater part on S. horizon. 2^h. Two currents of loose-edged cumuli and cumulo-strati. 5^h. Loose cumuli to S., like large cirro-cumuli, which near the zenith become small.

16 20—17 5. 20^h—23^h. Nearly homogeneous. 2^h. A little more broken: scud: cumuli to N. 5^h. A loose sort of cirro-cumuli highest, and in N. half of the sky: in the S. is a great mass of scud: rain to SE.

17 20—18 5. 20^h. From NNE. round by S. to SSW. is a mass of thick woolly feathery cirrus, radiating from SSE., reaching to NE., where there are cirro-strati; the feathers appear to move round their centres; on the horizon are watery-looking cumuli, then the thick cirrus, which becomes gradually thinner to near the zenith. 23^h. Detached loose cumuli: cirrous haze to SE. and NNW.; the linear cirri still radiating from SSE. 2^h. Loose detached cumuli: cirrous haze on SSE. and N. horizon: wind varying. 5^h. Rain for half-an-hour: very dark, especially to W.: a sort of hazy cloud: wind in gusts, sometimes to 3 or 4.

18 20—19 5. 20^h. Clouds clearing off rapidly; a few minutes ago the quantity was eighth-tenths: thin scud: a kind of cirro-cumuli higher: cumuli to N. 23^h—2^h. Loose detached cumuli. 5^h. Loose cumuli round horizon.

19 10—20 10. 10^h. Linear and woolly cirri: cumuli on horizon. 11^h—12^h. Cumuli on horizon. 13^h—14^h. Clear. 15^h—16^h. Lunar corona having the colours of the spectrum; outer radius about 5°: a few cumuli on NE. horizon. 17^h. As before, but no clouds. 18^h. A few clouds on E. horizon: slight corona: very clear. 19^h. Clear. 20^h—21^h. Heavy cumuli on E. horizon. 22^h. Beautiful cumuli on E. horizon: cirro-cumuli in zenith. 23^h. Loose cumuli and cirro-cumuli: beautifully pinnacled cumuli on E. horizon, which have been stationary since the earliest twilight. 0^h. Cumuli scattered in small portions all round the horizon. 1^h. Cumuli and cumulo-strati round horizon. 2^h—6^h. Cumuli and cumulo-strati, principally on horizon. 7^h—10^h. Cumuli on E. horizon.

20 20—21 5. 20^h—23^h. Cumulo-stratus on E. horizon, as there was all the previous day: linear cirri. 2^h. Cumuli on horizon: loose cumuli. 5^h. Loose cumuli or scud: woolly cirri above: cumuli on E. horizon.

21 20—22 5. 20^h. Rather heavy rain. 23^h. Loose cirro-cumuli and a few patches of scud. 2^h. Woolly cirri, becoming a kind of cirro-cumuli; linear cirri and cirrous haze in some places: loose cumuli. 5^h. Scud, very low and moving quickly: hazy clouds: sky stormy-like: a cloud like black cirrus is spread over much of the sky, it moves very little.

23 20—24 5. 20^h. Scud: haze above? 23^h. Loose cumuli and a sort of cirrous cloud becoming cirro-cumuli on the edges, all to E. 2^h. Loose cumuli lying round the horizon. 5^h. Cumuli on horizon, a few linear cirri to W.

24 20—25 5. 20^h. Cumuli on N. and E. horizon: linear cirri to S. 23^h. Strange appearance, as if the clouds reached the ground, like a ragged curtain spotted unequally with black: patch of green sky to E.: snow to S.? 2^h. Nearly as at 23^h, but the tint more uniformly gray: snow on Cheviot: snowing at 3^h. 5^h. As before, but patches of detached scud seen in the grayish haze: a few drops of rain: snowing at 4^h.

25 20—26 5. 20^h. A sort of loose cumuli arranged like cirro-cumuli: cumuli on horizon: ground covered with a thin coat of snow. 23^h. Snow. 2^h. Sleet till within a few minutes: scud: cirrous haze seen above: wind varying. 5^h. Scud; some of it very low: the sky covered with a thin cloud.

26 20—27 5. 20^h. Loose cirro-cumuli from N.: scud very low from about W., some from N., but all moving very slowly: mixed cirri seen very low, with a dark cloud above the scud: cumulo-strati to S., cirro-cumulous on the edges. 23^h. Highest clouds woolly cirri, linear in some places: loose scud: sky stormy-like. 2^h. Cumulous scud to S. and N.: a kind of cirrous cloud above: like rain to E., occasional drops here: a few patches of sky. 5^h. Scud: cirrous clouds above: light rain: wind varying from SSW. to NNW.

27 20—28 5. 20^h. Scud, like small cumuli: a kind of cirrous cloud below a great mass of scud: watery cumuli

OCTOBER.

to NE., very gray; like a volcano burning in one place: linear cirri to S.: sky rather indescribable: most of the scud cirrous. 23^h. Vertebrated cirri lying N. and S.: cumuli to NW. and SE.: masses of cirrous scud and loose cumuli to W. 2^h. Loose cumuli: fine woven or reticulated cirri, the thickest lines lying N. and S.: cirrous haze to E.: woolly cirri in zenith becoming cirro-cumuli in some places: wind varying. 5^h. Cirro-cumulous scud: a kind of woolly cirri seen above.

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28 20—29 5. 20^h. Loose cirro-cumuli on horizon from N., round by E. to S. 23^h. Cirro-strati to E.: linear cirri to W., like circles crossing in long arches from NNE. to WSW. 2^h. The sky to W. covered with cirri so close as almost to become haze; the structure is well seen to E., where there are fine hollow lines concave to N., with a foamy kind of line at right angles moving from NNW.; these lines are less distinct and lower than the first, being like bundles of woolly cirri: a few patches of cumuli to E., and cumulo-strati on E. horizon. 5^h. Loose cirro-cumuli, like scud, covering six-tenths of the sky: linear cirri and cirrous haze above: cirro-strati to S.

30 20—31 5. 20^h. Large loose cirro-cumuli, which become a sort of sandy-like cirrous cloud round horizon. 23^h. Cirro-cumuli and cirrous haze above: loose cumuli and scud below: the cirro-cumuli largest in zenith: patches of small cirro-cumuli in the haze to S. 2^h. Hazy: cirrous clouds highest, rippled, like sand on the sea-shore: cirro-stratous scud; some of the cirrous clouds are cirro-cumulous; a general grayish-blue appearance. 5^h. Hazy cirri: scud below: the clouds have all sorts of colours, grayish-blue, deep blue, orange, red, white, &c.: vertebrated cirri: a range of cumulus, extending about 50° along E. horizon, like a long pillar lying on its side.

31 20—31 23. 20^h. Smoky scud from WSW.: another current of scud higher from N. by W.: beautiful cirri highest from about W.; the cirrus is mottled, woolly, and linear, some of it like swan-down. 23^h. Loose irregular cirro-cumuli: cirro-strati to N. and S.: cumuli of different kinds to E.: cirrous haze to N.

NOVEMBER.

1 2—1 5. 2^h. Loose cirro-cumuli: cirrous haze to N.: cirro-strati and loose cumulo-strati to N. and NE. 5^h. Cirrous cirro-cumuli, coloured gray, fringed with red; thick to E. and S., where they assume a stratified form.

1 20—2 5. 20^h. Thin ragged scud, apparently touching the ground about three miles distant: cirri seen above. 23^h. Scud; neither so thin nor so low as at 20^h. 2^h. Scud moving very slowly: sky on E. and SE. horizon; occasionally patches in zenith. 5^h. Scud; motion very slow: cirrous clouds are now seen where the sky was at 2^h.

2 20—3 5. 20^h. Scud. 23^h. Cumulo-strati and large loose cirro-cumuli, both dropping a little rain; the cumulo-strati lowest. 2^h. Loose cumuli. 5^h. Scud round horizon, principally to E., in long strata descending in showers: cirro-cumulous patches crossing the zenith: the sky quite gray.

3 20—4 5. 20^h. Cirro-cumulous scud, with masses of it and heavy gray cumuli round horizon; to the N. they are like a gray curtain; to the S. some of the cumuli have cirrous crowns, forming nimbi; and some of the cumuli tops are now tipped with red. 23^h. Piles of cumulo-strati on horizon; nimbi to SE. and S., crowned with cirrus: small patches of scud: showers occasionally: the extremity of a rainbow seen within 100 yards. 2^h. Beautiful cumulo-strati and cirrous-crowned nimbi, principally near horizon: loose cirro-cumuli in zenith: shower of small hail about an hour ago: showers every half-hour: wind varying. 5^h. Large masses of loose cumuli and nimbi: shower to E. approaching,—here in five minutes.

4 20—5 5. 20^h. A sort of loose cirro-cumuli and scud, falling in rain in many places, and here occasionally: a few fine cirro-cumuli seen above. 23^h. Nimbi dropping like pencils: a sort of cirro-cumulous disposition of cloud: showers around: extremities of rainbows seen occasionally: the quantity of clouds often more or less: light shower of the most minute drops. 2^h. Scud and nimbi: smart shower of very fine rain: large cirro-cumuli above: very dark to W. and N. 5^h. Scud, cumuli, and nimbi: sky quite hazy to E.: about 10° above the E. point of the horizon is a large patch of flesh-red: showers.

6 20—7 5. 20^h. Cirro-cumulous scud: rain to S. 23^h. Nearly as before; sky on NW. horizon: sunshine occasionally. 2^h. Thicker than at 23^h; no sunshine. 5^h. Loose or ragged cirro-cumuli moving from SSW.; a little ago from SSE.?: sky on S. horizon, where it is white; red to E.: snow on Cheviot.

7 20—8 5. 20^h. Cirrous and loose cirro-cumuli: sky very calm: linear cirri: the sky almost covered with

NOVEMBER.

a cirrous cloud, which it is difficult to distinguish from sky. 23^{h}. Cirrous clouds: fine cirro-cumuli: thick cirrous haze, having cumulous heads to E.: the sun's rays project a faint shadow on paper. 2^{h}. Cumulo-strati over two-tenths of sky: cumuli: linear and mottled cirri and cirrous haze: cirrous haze on E. horizon; its formation of linear cirri becoming evident at about 15° altitude. 5^{h}. Cumulous scud: cumulo-strati and cirro-strati to E., with a bluish-black cirrous haze: beautiful ranges of cumulo-strati about an hour ago: sky hazy.

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8 20—9 5. 20^{h}—2^{h}. Light rain: clouds moving rapidly: wind settling at 2^{h}: calm at 3^{h}. 5^{h}. Cumulous scud: sky to S. hazy: a patch of red to N.: nearly calm, but occasionally gusts.

9 20—10 5. 20^{h}. Linear cirri to SE.: a little hoar-frost on the ground. 23^{h}. Fine cirro-cumuli and linear cirri; the linear cirri so fine as almost to be haze, occupying about $2\frac{1}{2}$ tenths of sky to S.; the cirro-cumuli lowest and moving slowly: a mass of cirro-cumuli to NW. 2^{h}. Cirrous haze: scud below. 5^{h}. Thick cirrous haze.

10 20—11 5. 20^{h}. Light rain: very thick and dark. 23^{h}—2^{h}. Scud: breaking up a little, and a slight shower at 2^{h}. 5^{h}. Clouds nearly homogeneous: a little foggy.

11 20—12 5. 20^{h}. The clouds have rather a broken appearance, moving very slowly: light mist. 23^{h}. Clouds broken, and rather cirro-cumulous; motion very slow. 2^{h}. Scud, like cedar branches: cirro-cumuli seen above with cirrous haze: wind rising. 5^{h}. Scud: cirro-cumuli above.

13 20—14 5. 20^{h}. Loose cirro-cumuli: cumuli on NE. horizon: cirro-strati to N.: slight cirrous haze: sky red to W. 23^{h}. Large loose cirro-cumuli: cumulo-strati on E. horizon: snow on the Cheviots. 2^{h}. A fine range of cumulo-strati on E. horizon: a few small cumuli and linear cirri to S. 5^{h}. Linear cirri, becoming haze, radiating from W., and apparently covering the whole sky, as the portion considered sky is whitish; the moon has a corona of the breadth of its own diameter round it: cumuli on E. horizon, where the haze is bluish-black.

14 20—15 5. 20^{h}. Scud and loose cumulo-strati; cirro-cumuli above: the scud creeps along the S. horizon: most beautiful and small cirro-cumuli seen at 22^{h}, lying in strata from E. to W. 23^{h}. Cirro-cumuli, but not so fine and distinct as before: loose cumuli moving quickly, much lower than the cirro-cumuli: snowing to E. and N.: some of the fine cirro-cumuli like foam zigzagged. 2^{h}. Cumulo-strati and scud: woolly cirri above, reaching from SE. to WNW., and moving very slowly: cumulo-strati on N. and E. horizon; much of the cirri flamed and linear, some of it mottled: snow twice or thrice since last observation; very mealy, and not coherent. 5^{h}. Mottled and loose cirrous clouds: scud: below the cirrous clouds are others like scud swept with a broom, radiating from WSW. in large pencils; it looks very strange; these clouds seem as if blown from the WSW., and seem to spread or move from it.

15 20—16 5. 20^{h}. Scud, &c., moving very slowly. 23^{h}. Scud: cirrous haze or fine linear cirri over two-tenths of the sky: snow on Cheviots, and clouds resting on their tops. 2^{h}. Almost as before: a few more patches of pure sky: the wind rose at $23^{h}\ 30^{m}$: blowing from ENE. 5^{h}. As before; wind in gusts.

16 20—17 5. 20^{h}. A bloated mass: snow on Cheviots. 23^{h}. As before: the clouds opening a little, having a sort of cirro-cumulous disposition: small patches of sky: motion of clouds very slow. 2^{h}. Loose cirro-cumulous cumuli: cirri. 5^{h}. As at 23^{h}.

17 20—18 5. 20^{h}. Cirro-cumuli, which lie in ranges from NNW. to SSE., moving from about WNW.: cirro-strati to E.: the sky almost covered with cirrous haze. 23^{h}. Scud, covering nearly the S. half of the sky; above it fine linear cirri, covering nearly the whole sky, radiating from NW.; some patches of cirro-cumuli still remain, the cirri becoming haze in many places: wind rising. 2^{h}. Nearly as before; three-tenths of scud, the rest cirrous haze, and a sort of mottled cirri. 5^{h}. Nearly all scud, although the sky is covered with a slight cirrous haze; Jupiter is seen through an opening in the clouds at an altitude of about 10°.

18 20—19 5. 20^{h}. Thick mist: light sprinkling of snow on the ground: mist falling like the finest light rain. 23^{h}. A kind of haze or hazy cloud: not the slightest breath of wind. 2^{h}. Loose cumuli and cumulo-strati: some mottled cirri above: cumuli on horizon: the air remarkably humid: every thing covered with moisture: the atmosphere not very transparent. 5^{h}. Heavy black cumuli and scud: some cumuli very low: a few patches of sky: the sky has a strange appearance.

20 20—21 5. 20^{h}. Scud: pinnacled cumuli on NE. horizon: a few minutes ago the sky was quite overcast. 23^{h}. Loose and well-defined cumuli: fine linear cirri becoming haze: rain or snow to SE. 2^{h}. Cirrous haze or linear cirri, covering the greater part of the sky, lying in strata to S. from ENE. to WSW: fine pinnacled cumulo-strati on horizon from N. to SE.: snow on Cheviots. 5^{h}. As

NOVEMBER.

before: a little more scud, and the haze so thick or white as to render it difficult to distinguish it from milky sky.

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21 20—22 5. 20^h. The ground covered by a slight fall of snow: still falling lightly. 23^h—2^h. Scud low: cirrous haze above: still a few flakes of snow: a break in the clouds to S. 5^h. Clouds a homogeneous mass: no scud visible: still a few flakes of snow, which are now increasing.

22 20—23 5. 20^h. Scud: cirrous clouds above: sky to S. 23^h. Cirro-strati on E. and S. horizon: frizzled cirri above to N. and E.: clouds resting on Cheviots; the hills look distant. 2^h. Cirrous-edged cumulo-strati, reaching from W. to SE., and moving along S. horizon: cirrous clouds above: clouds and snow on Cheviots. 5^h. Scud: cirro-strati to NE.

23 20—24 5. 20^h—2^h. Scud: cirrous haze: light rain. 5^h. Scud.

24 20—25 5. Scud. 20^h. Clouds opening: cirrous clouds above. 23^h. Cirro-strati and cumulo-strati on S. and E. horizon: sky to S. and E. 2^h. Haze: sky to N.

25 10—26 10. 10^h—19^h. Scud: slight shower at 14^h. 20^h. Scud: hazy above: fiery red to E.: patches of sky: rain lately. 21^h. Scud: cirrous clouds above: cumuli on E. horizon: hazy patches of sky: red to E. 22^h—3^h. Scud, and haze above. 4^h. Cirro-cumulous scud moving very slowly: sky to S. 5^h—6^h. Scud: dense: most open to SE. 7^h—8^h. Scud: rain at 8^h. 9^h—10^h. Very dark: at 10^h clouds lying in strata from S.

27 20—28 5. 20^h. Scud: light rain. 23^h. Scud: cirrous clouds above: patches of sky to E.: light rain. 2^h. As before; no sky. 5^h. Scud: light rain.

28 20—29 5. 20^h. Scud and loose cumulo-strati. 23^h. As before; sky principally to E. 2^h. Heavy cumuli and scud: cirrous clouds above: rain falling around. 5^h. Scud moving quickly: sky hazy.

29 20 Cumulo-strati, scud, and nimbi.

DECEMBER.

3 5 Scud.

4 20—5 5. 20^h. Scud: clouds breaking. 23^h. Beautifully mottled cirri, radiating from SW. and NE.; in some places like the finest cirro-cumuli, but chiefly like woolly net-work: scud below. 2^h. Scud: patch of sky on NE. horizon. 5^h. Scud: slightly cirro-cumulous: patches of sky.

5 20—6 5. 20^h. Foggy: rain lately: the vane points from NE. 23^h—2^h. Thick mist since 20^h; cleared off now: not a breath of wind. 5^h. Flocculent cirro-cumuli and scud; motion scarcely perceptible: mists rising from the ground.

6 20—7 5. 20^h. Homogeneous. 23^h. Scud: clouds breaking: small patches of sky. 2^h. Scud and loose cumulo-strati: linear cirri and cirrous haze above. 5^h. Cirro-stratus scud: cirro-cumulous clouds above: clouds red to SW.

7 20—8 5. 20^h. Loose cumulo-strati or scud: cirrous clouds over the sky: red to E. 23^h—5^h. Cirro-cumulous scud.

8 20—9 5. 20^h. Homogeneous: gray. 23^h. Scotch mist. 2^h. Mist still: scud: clouds breaking: a patch of sky: fine cirri seen above. 5^h. As at 2^h.; no sky.

9 20—10 5. 20^h. Thick mist. 23^h. Thick mist: scud: patches of sky: cirrous clouds seen above: in a few minutes the quantity of clouds 8. 2^h. Mist and light rain. 5^h. Cirro-cumulous scud: an hour ago the quantity of clouds was 8.

11 20—12 5. 20^h. Dark: light rain: sky to SSE. 23^h. Scud, with lightest rain: patches of hazy sky to SSE., with very gray clouds. 2^h—5^h. Scud: light rain.

12 20—13 5. Scud. 20^h. Light rain. 2^h. Rain heavier. 5^h. Light rain.

13 20—14 5. 20^h. Scud: patches of sky covered with cirrous clouds to SE. 23^h. A sort of cirrous scud, rather cirro-cumulous in its disposition. 2^h. Sky covered with masses of cirrous clouds, some of them very low; large white mass to N., moving very slowly: the sky greenish-blue to SE. 5^h. Thick cirrous clouds, lighter here and there.

14 20—15 5. 20^h. A few drops of rain: a patch of bright red to SE. 23^h. Scud: light rain. 2^h. Scud. 5^h. A great reservoir of curled scud, boiling up in the SW., and moving quickly across the sky: a few cirrous clouds higher, moving very slowly: sky hazy.

15 20—16 5. 20^h. Cirrous clouds: it is difficult to tell what is sky and what is not, on account of the cirrous haze: cumulo-strati and cirro-strati on horizon. 23^h. Scud: misty drizzle. 2^h. Scud: cirrous clouds above: cumuli to E. 5^h. Scud: a few patches of sky to E. and S.: occasionally drops of rain as there have been all day.

DECEMBER.

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16 20—17 5. 20^{h}. A great mass of scud covered eighth-tenths of the sky at 19^{h} 50^{m}, when there was a pretty heavy shower; it moved off so rapidly that there was only one-tenth of clouds at 20^{h} 0^{m}: a complete and distinct lunar rainbow seen at 19^{h} 50^{m}: cumuli and nimbi to S. and SE. 23. Scud or loose cumulo-strati. 2^{h}. Cirrous scud, chiefly to W. 5^{h}. Loose cumuli.

18 20—19 5. 20^{h}. Cirrous clouds and haze. 23^{h}. Scud: fine mottled, pure, and linear cirri above, pointing N. 2^{h}. Loose cumuli: fine cumuli on the Cheviots, but the sky covered chiefly with fine cirri, radiating fron NNW. and from S. by W., principally mottled, but very thick to W. and NW.: linear to E.: hazy to W.: sky to E. 5^{h}. Sky covered with cirrous clouds.

19 20—20 5. 20^{h}. four-tenths of scud, the rest linear cirri, which covers almost all the sky: corona round the moon, radius three diameters. 23^{h}. Scud: varieties of cirri above. 2^{h}. Cirrous scud: linear and pure cirri of the finest kind, like silken hairs, pointing from WSW. to ENE. 5^{h}. Thick scud: cirrous clouds above.

20 20—20 23. 20^{h}. Fine cirri and cirrous cirro-cumuli, moving slowly. 21^{h}. Fine cirrous clouds, mottled and in strata: cirro-strati. 22^{h}. Fine cirro-cumuli: linear, mottled, and woolly cirri, the latter in little bundles lying in strata: woolly cirro-cumuli; some of the cirri extremely fine; much of the upper cirri appears to radiate from NW. 23^{h}. Cirrous clouds: cirro-cumuli of various sizes: finest linear cirri highest, pointing from WNW.; the cirrous clouds are very thick in some places, and to the E. become like cirro-strati; the lowest cirro-cumuli are rather large and woolly: about 23^{h} 20^{m} a few cymoid cirri were seen, and a few most beautiful mottled cirri.

21 0—21 23. 0^{h}. Large woolly cirro-cumuli moving slowly from WNW.: linear cirri lower, seem as if drifted from WNW.; thick towards horizon, cederaceous to SE. 1^{h}. The clouds present altogether a troubled appearance: the cirrous clouds have become quite thick, and like a semifluid: radiating from SE. and NW., lying in dark and light strips: masses of scud or loose cumuli creeping along S. horizon from about W. 2^{h}. Cirrous clouds thick and spread unevenly over the sky: scud to S. 3^{h}. Some smoky scud very low from WSW.; scud or thick cirrous clouds above it from WNW., the cirrous clouds not so thick as at 2^{h}: some patches of sky: observed a patch of loose scud moving up from SW., which seemed to develop itself as if under the influence of two currents; when about 30° high, it showed the prismatic colours, something like diffraction spectra from irregularly striated bodies; the clouds have a gray tinge; other cirrous clouds above all. 4^{h}. The sky has a strange appearance: scud very low, very far below the highest cirri, moving in strings like smoke quickly from SW.: higher scud slower from W.: linear cirri in E., and cirro-cumuli in zenith, &c.; lowest cirro-cumuli gray, and moving slowly from about W., lying in bands from N. to S.; highest very fine, their motion not detected. 5^{h}. Scud principally: cirrous clouds seen above: sky in zenith. 6^{h}. Dark, but masses of scud can still be seen moving up from SW. 7^{h}. Quite dark. 8^{h}. North part of the sky dark; the south part has dark clouds near horizon, but lightens up to zenith, probably cirrous haze: stars occasionally visible. 9^{h}. Dark. 10^{h}. Scud, radiating from SE.: apparently cirrous clouds above. 11^{h}. Clear in zenith: heavy clouds to E. 12^{h}. Clear streak in S. horizon: patches of sky to W. and in zenith. 13^{h}. Light clouds in zenith. 14^{h}—15^{h}. Dense clouds to SE. and NW. 16^{h}. Light clouds on N. and E. horizon; the rest of the sky covered with dark lowering scud. 17^{h}. Dark clouds, except on N. horizon. 18^{h}—19^{h}. Cirrous clouds on horizon. 20^{h}. Sky covered with heavy clouds, especially on horizon. 21^{h}. Scud: heavy clouds on SE. horizon. 22^{h}. Scud: cirrous clouds. 23^{h}. Scud very low and moving quickly from SW. patches of sky: cirrous clouds seen above.

22 0—22 10. 0^{h}. Scud moving rapidly. 1^{h}. Scud: cirrous clouds. 2^{h}. Scud: loose cumuli on E. horizon. 3^{h}. Heavy rain: clear to N. 4^{h}. Sky clear, except where cirrous cumuli skirt the horizon on all points but NE. 5^{h}. Scud: light rain. 6^{h}—7^{h}. Scud, &c.: dark. 8^{h}. Clear in zenith. 9^{h}. Scud. 10^{h}. Light rain.

22 20—23 5. 20^{h}. In a few minutes rain, and the sky became nearly overcast: sky on SE. horizon: cirro-strati seen there. 23^{h}. Scud, in strata to SE.: a few linear cirri: rain freezing on the palings, &c. 2^{h}. A mass of cumuli to SE., and on NW. horizon. 5^{h}. Loose-edged cumuli, having a cirro-cumulous disposition, moving quickly.

23 20—24 5. 20^{h}. Scud and cirrous clouds. 23^{h}—2^{h}. Clear: a few cumuli on NE. horizon, and on Cheviot. 5^{h}. Thin cirrous clouds, with a cirro-cumulous disposition.

25 20—26 5. 20^{h}. Sky covered with a thin watery haze, which makes a sort of oblong halo round the moon: light rain. 23^{h}. Cirrous scud: woolly cirri above: portion of a rainbow seen: rain here lately: raining heavily on Cheviot. 2^{h}. Homogeneous scud: cirrous clouds above: light rain. 5^{h}. Cirrous clouds: mottled, linear and woolly cirri, and loose cirro-cumuli: sky nearly covered with fine cirri.

DECEMBER.

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26 20—27 5. 20^{h}. Clouds lying in a belt from S. to NE.: above NE. horizon, cirro-strati. 23^{h}. Mixed and linear cirri: cumuli on Cheviot. 2^{h}. Scud from W by N., and on Cheviot: a few patches of cirri to E. 5^{h}. Scud and loose cumuli.

27 20—28 5. 20^{h}. Cirrous clouds. 23^{h}. A few patches of cumuli and scud on Cheviot. 2^{h}. Sky nearly covered by fine linear cirri: cumuli, &c. on Cheviot. 5^{h}. Sky covered with cirrous clouds: principally fine linear cirri, which now seem almost haze.

28 20—29 5. 20^{h}—23^{h}. Scud: light rain: raining heavily to E. at 23^{h}. 2^{h}. To the S. a large mass of loose cumulo-stratus: patches of scud: masses of linear cirri. 5^{h}. Scud and cirrous clouds: thick masses of cirrous clouds to E.

29 20—30 5. 20^{h}—23^{h}. Scud. 2^{h}. Scud: linear cirri, &c. above. 5^{h}. Very thin scud: very black to S.: cirri seen about: wind varying.

30 20—31 5. 20^{h}. Scud. 23^{h}. Loose cumuli: cumuli on SE. horizon: a few rather large cirro-cumuli: woolly cirrous clouds: portion of a rainbow seen. 2^{h}. Long strata of woolly cirri, lying from WNW., moving from W by N., covering the greater part of the sky; a clear space to N.: much linear and reticulated cirri: cirri thickest to S.: cumuli on N. horizon. 5^{h}. Cirri of different kinds, becoming haze to S.: cumuli on NE. and SW. horizon.

ABSTRACTS OF THE RESULTS

OF THE

MAGNETICAL OBSERVATIONS,

MADE AT THE OBSERVATORY OF

GENERAL SIR T. M. BRISBANE, BART.,

MAKERSTOUN.

1841 AND 1842.

TABLE I.—The Monthly Means of the Declinometer Readings in Westerly Declination, for the Hours 20, 23, 2, and 5.

Month.	20h.	23h.	2h.	5h.	Mean of 20h and 5h.	Range.
1841.	25°	25°	25°	25°.	25°.	
July	25′·95	30′·65	35′·70	33′·03	29′·49	9′·75
August	33·68	37·32	42·55	38·09	35·88	8·87
September	30·26	34·27	39·01	33·87	32·06	8·75
October	30·42	31·99	34·75	30·02	30·22	4·33
November	31·63	32·94	35·15	32·01	31·82	3·52
1842.						
January	27·96	28·47	30·77	29·25	28·60	2·81
February	29·46	31·51	35·74	31·23	30·34	6·28
March	27·51	31·13	35·63	31·92	29·71	8·12
April	30·66	34·84	39·96	35·82	33·24	9·30
May	25·52	30·53	35·98	33·23	29·37	10·46
June	24·94	29·25	34·92	33·31	29·12	9·98
July	25·13	28·65	34·08	31·98	28·55	8·95
August	24·18	29·73	33·53	28·80	26·49	9·35
September	26·53	31·08	34·25	28·85	27·69	7·72
October	25·79	28·42	32·79	28·31	27·05	7·00
November	26·80	28·16	30·38	26·80	26·80	3·58
December	24·85	25·86	27·53	25·36	25·10	2·68

The mean of the Declinations at 20h and 5h have been given as an approximate mean for the month. The difference of the Declinations at 20h and 2h is given as the approximate diurnal range. The latter must be very near the truth, as 20h and 2h are nearly the hours of least and greatest Westerly Declination throughout the year.

It seems very probable, that the Declination in the months of July and August 1841, and of April 1842, are considerably affected by the torsion of the suspension thread. While this would destroy the value of the mean for the month, the diurnal range may be considered as unaffected.

In order to shew the regular changes well, it is advisable to eliminate, as far as possible, those days of irregularity or disturbance in which the positions of the magnet differ considerably from the mean. The following rule was adopted for the determination of the days of irregularity which should be rejected.

If a, b, and c, be the approximate diurnal ranges for three successive months, those days in the middle month are rejected in which the diurnal range exceeds $\frac{a+2b+c}{2}$.

For the first and last months, the sum $b+c$ or $a+b$ has been used. (See Table XXIII.)

This rule was formed chiefly for the two components of force, for which it is much better suited than for the Declination.

Table II. has been formed after rejecting the days of disturbance thus determined.

TABLE II.—The Monthly Means of the Declinometer Readings, *rejecting disturbances*, in Westerly Declination, for the Hours 20, 23, 2, and 5.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of 20^h and 5^h.	Range.
	25°	25°	25°	25°	25°	
1841.						
July	26′.42	30′·74	35′·14	32′·78	29′·60	8′·72
August	33·68	37·32	42·55	38·09	35·88	8·87
September	30·23	33·34	38·35	34·23	32·23	8·12
October	29·21	31·10	33·90	31·01	30·11	4·69
November	30·55	31·44	33·83	31·60	31·07	3·28
1842.						
January	27·96	28·47	30·77	29·25	28·60	2·81
February	29·25	31·19	34·91	32·48	30·86	5·66
March	27·53	30·98	35·43	31·52	29·52	7·90
April	31·06	34·34	39·73	35·73	33·39	8·67
May	25·50	30·50	35·79	32·57	29·03	10·29
June	24·94	29·25	34·92	33·31	29·12	9·98
July	25·13	28·65	34·08	31·98	28·55	8·95
August	24·18	29·73	33·53	28·80	26·49	9·35
September	26·68	30·99	34·06	28·92	27·80	7·38
October	25·90	28·32	32·75	28·81	27·35	6·85
November	26·58	27·92	30·02	26·98	26·78	3·44
December	24·88	25·94	27·31	25·54	25·21	2·43

Each month shews markedly an increase of Westerly Declination from 20^h till 2^h, and a decrease from 2^h till 5^h.

The means cannot be trusted for indications of an annual period. The diurnal range, however, increases considerably in summer compared with winter, and the ranges of the months in 1841 and 1842 agree very well. The maximum range occurs in May 1842, but it seems probable that the ranges for April, June, and July, 1842, are less than they should be, owing to disturbances, which have not been eliminated by the previous rule.

The two following Tables are formed from Table II.

TABLE III.—The Westerly Declination at the Observation Hours for periods of Three Months, for the Summer and Winter Months, and for the Year 1842.

Period.	20^h.	23^h.	2^d.	5^h.	Mean of 20^h and 5^h.	Range.
	25°	25°	25°	25°	25°	25°
1841.						
July, Aug., Sept.	30′·11	33′·80	38′·68	35′·03	32′·57	8′·57
Oct. and Nov.	29·88	31·27	33·86	31·30	30·59	3·98
1842.						
Jan., Feb., March	28·24	30·21	33·70	31·08	29·66	5·46
April, May, June	27·17	31·36	36·81	33·87	30·52	9·64
July, Aug., Sept.	25·33	29·79	33·89	29·90	27·61	8·56
Oct., Nov., Dec.	25·79	27·39	30·03	27·11	26·45	4·24
Jan., Feb., March Oct., Nov., Dec.	27·01	28·80	31·86	29·09	28·05	4·85
April, May, June July, Aug., Sep.	26·25	30·57	35·35	31·88	29·06	9·10
The Year.	26·63	29·69	33·61	30·49	28·56	6·98

TABLE IV.—The Yearly Decrease of Westerly Declination, as Deduced from the Four Daily Observations in the Five Months of 1841 and 1842.

Month.	20ʰ.	23ʰ.	2ʰ.	5ʰ.	Mean of the Four Hours.
July	1′·29	2′·09	1′·06	0′·80	1′·31
August	9·50	7·59	9·02	9·29	8·85
September	3·55	2·35	4·29	5·31	3·87
October	3·31	2·78	1·15	2·20	2·36
November	3·97	3·52	3·81	4·62	3·98
Means	4·32	3·66	3·87	4·44	4·07

If the results for July and August be rejected, the mean of the other three months will be 3′·40.

TABLE V.—The Extreme Readings of the Declinometer for each Month from the Four Daily Observations.

Month.	North End of Magnet Farthest E.		W.		Range.
	Göttingen Mean Time.	Declination.	Göttingen Mean Mime.	Deciination.	
1841.	d. h. m.	° ′	d. h. m.	° ′	′
July	12 20 0	25 21·80	15 2 0	25 41·29	19·49
August	11 20 0	25 26·81	23 20 0	25 50·30	23·49
September	8 20 0	25 22·64	25 2 0	25 53·14	30·50
October	12 20 0	25 21·67	24 20 0	25 45·59	23·92
November	24 20 0	25 25·58	5 2 0	25 49·77	24·19
1842.					
January	27 20 0	25 25·30	29 2 0	25 33·31	8·01
February	17 5 0	25 18·15	18 2 0	25 40·52	22·37
March	9 5 0	25 21·23	30 2 0	25 42·80	21·57
April	24 20 0	25 20·85	14 20 0	25 52·33	31·48
May	18 20 0	25 21·38	16 5 0	25 49·71	28·33
June	2 20 0	25 19·92	10 2 0	25 40·63	20·71
July	20 20 0	25 20·93	2 2 0	25 38·01	17·08
August	16 20 0	25 20·15	4 23 0	25 38·92	18·77
September	25 20 0	25 22·20	22 2 0	25 40·23	18·03
October	17 5 0	25 16·43	8 2 0	25 36·80	20·37
November	11 5 0	25 22·44	10 2 0	25 38·37	15·93
December	8 5 0	25 18·83	30 2 0	25 31·76	12·93

The range of the five months of 1841 from the Daily Observations is 31′·5. The Westerly Declination being least in October, 8′·4 below the mean of the month; and greatest in September, being 20′·9 above the mean of the month.

The range for 1842 is 35′·9. The Westerly Declination being least in October, 10′·9 below the mean of the month; and greatest in April, being 18′·9 above the mean of the month.

TABLE VI.—The Extreme Readings of the Declinometer for each of the Term-Days.

Month.	North End of Magnet Farthest				Range.
	E.		W.		
	Göttingen Mean Time.	Declination.	Göttingen Mean Time.	Declination.	
1841.	d. h. m.	° ′	d. h. m.	° ′	′
July	21 18 0	25 24·95	21 16 0	25 46·83	21·88
August	27 11 10	25 21·18	28 1 35	25 48·25	27·07
September	22 10 25	25 26·17	23 1 25	25 41·67	15·50
October	21 6 40	24 56·85	21 1 20	25 39·25	42·40
November	27 8 50	25 24·43	27 1 15	25 33·30	8·87
December	23 9 10	25 24·82	23 0 10	25 35·53	10·71
1842.					
January	19 10 36	25 23·17	20 4 18	25 38·89	15·72
February	25 10 0	25 22·42	26 2 24	25 37·02	14·60
March	24 8 36	25 9·38	23 13 12	25 40·38	31·00
April	20 15 24	25 22·38	20 16 12	25 46·82	24·44
May	27 21 0	25 25·02	28 2 18	25 36·23	11·21
June	23 8 6	25 16·95	23 1 0	25 37·23	20·28
July	20 10 0	25 16·77	21 1 42	25 32·87	16·10
August	26 12 42	25 17·47	26 11 42	25 33·13	16·66
September	22 7 30	25 11·10	22 1 12	25 41·73	30·63
October	19 10 48	25 16·26	19 13 18	25 38·23	21·97
November	25 10 0	25 26·22	26 1 42	25 31·70	5·48
December	20 10 0	25 22·40	21 0 36	25 30·93	8·53

The range of the six Term-days of 1841 is 51′·4; the least Westerly Declination occurring in October, being 33′·3 below the mean of the month; the greatest in August, being 12′·4 above the mean of the month.

The range of the twelve terms in 1842 is 37′·4; the least Declination occurring in March, being 20′·1 below the mean of the month; the greatest in April, being 13′·4 above the mean of the month.

TABLE VII.—The Extreme Readings of the Declinometer during Extra Observations for each Month in which Extra Observations were made.

Month.	North End of Magnet Farthest				Range.
	E.		W.		
	Göttingen. Mean Time.	Declination.	Göttingen Mean Time.	Declination.	
1841.	d. h. m. s.	° ′	d. h. m. s.	° ′	′
August	20 22 40 0	25 35·28	20 23 20 0	25 38·30	3·02
September	25 5 35 18	25 21·07	25 6 20 18	27 1·56	100·49
1842.					
May	24 8 0 0	25 30·45	16 5 0 0	25 49·71	19·26
July	1 20 42 0	25 6·55	2 11 48 0	25 50·28	43·73
August	6 5 30 0	25 21·65	19 5 48 0	25 34·88	13·23
September	2 8 24 0	24 54·28	21 2 0 0	25 37·30	43·02
October	17 5 24 0	25 5·08	18 3 4 0	25 32·87	27·79
November	3 8 0 0	25 17·57	21 20 48 0	25 40·98	23·41
December	9 5 54 0	25 9·58	9 8 24 0	25 36·22	26·64

The range of all the disturbances observed in 1842 is 56′.

The least Westerly Declination occurs in September, being 33′·5 below the mean of the month; the greatest in July, being 21′·7 above the mean of the month.

The range of Declination from *all* the observations of 1841 is 2° 4′·7. The least Westerly Declination occurring in the October term 1841, being 33′·3 below the mean of the month; the greatest during the disturbance September 25. 1841, being 1° 29′·3 above the mean of the month.

The range of *all* the observations in 1842 is 58′. The least Westerly Declination occurring during the disturbance September 2. 1842, being 33′·5 below the mean of the month; the greatest in the Daily Observation, April 14^d 20^h 1842, being 18′·9 above the mean of the month.

TABLE VIII.—The Monthly Means of the Scale Readings of the Bifilar Magnetometer, *as Corrected in this Volume*, for 20^h, 23^h, 2^h, and 5^h.

Month.	20^h.	23^h.	2^h.	5^h.
1841.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.
July	472·04	466·30	486·96	500·35
August	528·00	528·28	540·45	550·06
September	544·36 562·12 558·26	540·08 554·27 552·32	554·78 575·74 564·55	558·86 593·05 585·93
October	485·32 495·31 489·60	484·42 495·14 489·78	496·05 517·36 506·20	507·19 509·86 508·46
November	502·48	499·33	509·41	510·47
1842.				
January	516·45	513·28	522·98	522·81
February	517·62	514·61	523·82	528·07
March	518·40	513·20	525·92	532·65
April	510·58	507·32	524·48	537·73
May	524·78	520·31	533·78	542·47
June	527·29	523·56	539·14	549·57
July	521·85	521·21	542·29	549·90
August	528·38	524·02	542·77	550·14
September	531·31	523·78	540·32	545·03
October	534·60	527·32	540·12	543·03
November	536·26	533·85	542·97	544·06
December	544·33	542·69	547·79	547·74

As there was an adjustment of the Bifilar Magnetometer between July and August, and between September and October 1841, the observations in July 1841 are not comparable with the others; August and September 1841 are comparable with each other only.

In September 1841 and October 1841, the torsion circle was moved 50′, in order to make the middle of the scale nearly the mean reading, from which it had moved considerably in each case after the previous adjustment: there seems little doubt that this rapid change had some connection with torsion in the silver wires. It is very probable that this source of error still shews itself in November 1841.

The observations from September 7^d 20^h till the end of September have been reduced to the value of v in August and beginning of September; those from October 6^d to October 20^d have been reduced to the value of v after. In each case, the means of reduced and unreduced portions of the month have been printed in small type, the means in large type being the means for the month.

A new and preferable value of q, the co-efficient for the temperature correction, having been obtained from a comparison of the Daily Observations in 1844, the following Table has been formed; it was thought well, however, to give the means as corrected in this Volume, for the purposes of comparison.

TABLE IX.—The Monthly Means of the Bifilar Magnetometer Scale Readings, *Corrected by a new value of q*, for the Hours 20, 23, 2, and 5.

Month.	20ʰ.	23ʰ.	2ʰ.	5ʰ.	Mean of the Four Hours.	Approximate Mean Daily Range.
	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.
1841.						
July	457·45	450·82	470·26	482·54		31·72
August	516·26	515·87	526·92	535·81	523·71	19·94
September	534·79	530·26	543·78	547·35		
	550·63	542·24	562·51	579·17		
	547·19	540·24	558·76	572·54	554·68	32·30
October	475·01	474·17	483·07	494·02		
	487·27	486·08	506·50	499·04		
	480·26	480·12	494·22	496·41	487·75	16·29
November	496·56	492·98	500·73	501·21	497·87	8·23
1842.						
January	509·23	505·80	513·00	512·05	510·02	7·20
February	508·33	505·02	512·47	515·60	510·35	10·58
March	509·69	503·78	514·81	520·74	512·25	16·96
April	501·46	497·49	512·46	523·95	508·84	26·46
May	512·82	507·53	519·52	527·10	516·74	19·57
June	512·32	507·81	521·90	531·11	518·28	23·30
July	507·23	505·82	525·56	532·15	517·69	26·33
August	512·29	507·27	524·26	530·58	518·60	23·31
September	517·88	509·94	524·98	528·64	520·36	18·70
October	524·91	517·14	528·01	529·90	524·99	12·76
November	526·42	523·32	530·49	530·86	527·77	7·54
December	532·20	530·22	534·37	533·79	532·64	4·15

The small type in September and October 1841 is explained for Table VII.

The following Tables for the Horizontal force are corrected by the new value of *q*.

The rule given after Table I. for the days of irregularity to be rejected, having been applied, the following Table has been formed.

TABLE X.—The Monthly Means of the Bifilar Magnetometer Scale Readings, as Corrected in Table VIII., and *rejecting* days of marked *disturbance*.

Month.	20ʰ.	23ʰ.	2ʰ.	5ʰ.	Mean of the Four Hours.	Range from the Four Hours.
	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.
1841.						
July	457·07	454·23	468·70	480·84		25·20
August	519·50	516·45	528·00	534·76	524·68	22·24
September	547·59	541·44	553·38	559·21	550·40	21·60
October	484·10	481·28	487·95	493·37	486·67	12·19
November	499·64	495·01	499·66	500·92	498·81	5·91
1842.						
January	508·62	505·55	513·36	512·87	510·10	7·81
February	507·67	504·91	511·31	515·16	509·76	10·25
March	509·60	504·36	514·72	520·11	512·20	15·75
April	506·04	501·21	512·66	522·92	510·71	21·71
May	512·79	507·51	520·32	525·96	516·64	18·45
June	512·66	508·50	522·28	530·64	518·52	22·14

TABLE X.—*continued.*

Month.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.	Range from the Four Hours.
1842.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.	Sc. Div.
July	512·39	507·18	521·85	529·82	517·81	22·64
August	512·91	507·43	523·34	528·91	518·15	21·48
September	518·03	511·58	524·85	527·77	520·56	16·19
October	525·19	519·88	528·01	529·39	525·62	9·51
November	527·27	525·24	530·71	531·40	528·65	6·16
December	532·36	530·15	535·20	534·90	533·15	5·05

In Tables VIII. and IX. the mean of the four observations has been given as an approximate mean for each month; the last column contains the range deduced from these four observations, and is probably not far from the true diurnal range.

In all the months, with the exceptions of January and December 1842, 23^{h} shews the least force of the four hours; the greatest force is at 5^{h}. In January and December 1842, the greatest force is at 2^{h}; in October 1842, and November 1841 and 1842, the force at 2^{h} differs little from that at 5^{h}. The minimum seems therefore to occur throughout the year a little before 23^{h} (or before 10^{h} A. M. Makerstoun mean time); the maximum about 5^{h} (or 4^{h} P. M. Makerstoun time) in summer, and between 2^{h} and 5^{h} (or 1^{h} and 4^{h} P. M. Makerstoun time) in winter. In December 1842, the maximum occurs about 2^{h} P. M. Makerstoun time. The diurnal ranges, as given in the last column, though affected by the shifting of the curve in the summer and winter months, shew markedly a great and regular increase from winter to summer, and decrease from summer to winter. Although the rejection of the days of irregularity have considerably softened the asperities in the Means of Table VIII., the depressions in June and July being considerably removed when compared with May, the depression in April still remains.

The force on the whole increases from the beginning of the year till the end; the increase being most rapid after September 1842; and it is nearly constant for the summer months.

The following Table has been deduced from Table X.

TABLE XI.—The Means of the Bifilar Magnetometer Readings *minus* the least mean, in parts of the whole Horizontal Force, for periods of Three Months, for the Summer and Winter Months of 1842, and for the Year 1842.

Period.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean.	Range.
1841.						
July, Aug., Sept.	0·00058	0·00000	0·00177	0·00288		0·00288
Oct., Nov.	0·00046	0·00000	0·00071	0·00112	0·00057	0·00112
1842.						
Jan., Feb., March	0·00256	0·00210	0·00312	0·00349	0·00282	0·00139
April, May, June	0·00279	0·00220	0·00378	0·00480	0·00339	0·00260
July, Aug., Sept.	0·00329	0·00257	0·00440	0·00509	0·00384	0·00251
Oct., Nov., Dec.	0·00502	0·00462	0·00540	0·00547	0·00513	0·00085
Jan., Feb., March, Oct., Nov., Dec.	0·00379	0·00336	0·00426	0·00448	0·00397	0·00112
April, May, June, July, Aug., Sept.	0·00304	0·00238	0·00409	0·00494	0·00361	0·00256
The Year	0·00341	0·00287	0·00417	0·00471	0·00379	0·00184

The quarter, July, August, and September, is not comparable with the following period.

The Means for 1842 shew a regular increase of force in the first three quarters; in the last the force increases with more rapidity.

TABLE XII.—The least and greatest Readings of the Bifilar Magnetometer for each Month, from the Daily Observations.

Month.	Bifilar Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h. m.	Sc. Div.	d. h. m.	Sc. Div.	Sc. Div.
July	19 23 0	426·9	21 5 0	501·1	74·2
August	4 23 0	492·4	26 5 0	554·8	62·4
September	3 23 0	524·5	25 5 0	875·9	351·4
October	6 23 0	447·8	25 2 0	638·6	190·8
November	18 20 0	438·0	18 2 0	515·9	77·9
1842.					
January	21 23 0	496·0	25 2 0	519·6	23·6
February	1 23 0	497·7	24 2 0	530·4	32·7
March	27 23 0	490·2	23 2 0	534·5	44·3
April	14 20 0	446·8	15 5 0	549·9	103·1
May	17 23 0	495·6	16 5 0	555·4	59·8
June	13 23 0	490·8	20 5 0	542·8	52·0
July	3 20 0	429·6	4 2 0	609·8	180·2
August	5 23 0	479·8	19 5 0	574·0	94·2
September	28 23 0	492·3	9 5 0	541·2	48·9
October	16 23 0	507·4	20 5 0	537·5	30·1
November	21 20 0	492·2	28 5 0	540·6	48·4
December	7 5 0	520·4	28 2 0	542·4	22·0

In the five months of 1841, the range of Horizontal Force from the Daily Observations is about 0·05708. The force being below the mean of the month 0·00760 in November, and above the mean of the month 0·04948 in September.

In 1842, the range, in parts of the whole Horizontal force, is 0·02252. The force being below the mean of the month 0·01102 in July, and above the mean of the month 0·01150 in July.

TABLE XIII.—The least and greatest Readings of the Bifilar Magnetometer on each Term-Day.

Month.	Bifilar Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h. m.	Sc. Div.	d. h. m.	Sc. Div.	Sc. Div.
July	21 15 52½	423·6	22 7 22½	485·3	61·7
August	27 22 52½	509·2	28 6 42½	556·6	47·4
September	22 23 2½	543·0	23 6 12½	576·6	33·6
October	20 14 32½	441·0	20 11 52½	525·8	84·8
November	27 8 42½	496·5	27 9 32½	505·5	9·0
December	22 10 32½	492·1	23 9 12½	514·4	22·3

TABLE XIII.—*continued.*

Month.	Bifilar Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time	Reading.	Göttingen Mean Time.	Reading.	
1842.	d. h. m.	Sc. Div.	d. h. m.	Sc. Div.	Sc. Div.
January	19 22 2	498·8	19 12 38	515·4	16·6
February	26 0 8	501·1	26 4 56	517·4	16·3
March	23 13 2	463·7	24 8 38	558·3	94·6
April	20 16 2	455·0	21 5 26	538·6	83·6
May	27 23 20	508·5	28 6 8	536·3	27·8
June	22 21 20	497·7	23 8 8	553·1	55·4
July	20 23 8	507·9	21 3 38	533·5	25·6
August	26 22 56	507·0	27 6 38	539·4	32·4
September	21 22 26	503·6	22 7 32	564·3	60·7
October	19 22 50	514·7	19 11 2	562·8	48·1
November	25 22 14	522·4	25 15 44	537·7	15·3
December	20 20 56	529·1	21 5 44	537·3	8·2

The range, in parts of the whole horizontal force of the five terms of 1841, is about 0·01060. The greatest and least occurring in the October term, being 0·0571 below, and 0·00489 above the mean of the month in Table X.

The range of the terms of 1842 is 0·01242. The least being 0·00696 below the mean of the month in April; and the greatest 0·00546 above the mean of the month in September.

TABLE XIV.—The lowest and highest Readings of the Bifilar Magnetometer during Extra Observations for each Month, in which Extra Observations were made.

Month.	Bifilar Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h. m. s.	Sc. Div.	d. h. m. s.	Sc. Div.	Sc. Div.
August	20 22 42 30	517·9	20 23 2 30	520·7	2·8
September	25 6 58 55	629·8	25 4 23 55	903·7	273·9
1842.					
May	16 6 39 0	528·8	16 5 2 0	555·4	26·6
July	2 11 47 0	273·1	4 2 0 0	621·1	348·0
August	5 23 2 0	479·8	19 5 2 0	574·0	94·2
September	20 19 32 0	498·7	20 7 38 0	567·3	68·6
October	17 20 2 0	519·9	17 5 26 0	545·3	25·4
November	21 20 2 0	492·2	19 6 44 0	537·2	45·0
December	9 8 26 0	496·2	5 20 38 0	545·8	49·6

The range of the observed portion of the disturbance, September 1841, is 0·04163; the lowest being 0·01207 *above*, and the highest 0·05370 *above* the mean of the month.

The range of the observed disturbances of 1842 occurs in July, and is 0·04350. The lowest being 0·03059 *below*, and the highest 0·01291 *above* the mean of the month.

The range of all the observations in 1841 is about 0·06130. The lowest being in the Daily Observation, November 18.=0·00760 *below* the mean of the month; the highest 0·05370 *above* the mean of the month, occurs in the disturbance September 1841.

The range of all the observations in 1842 occurs in the July disturbance given above.

TABLE XV.—Containing the Monthly Means of the Balance Magnetometer Readings, *as Corrected in this Volume*, for the Hours 20, 23, 2, and 5.

Month.	20^h.	23^h.	2^h.	5^h.	Range from the Four Hours.
1841.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
July	738·3	744·6	765·7	784·8	46·5
August	715·4	715·8	707·1	724·4	17·3
September	659·9	676·2	677·8	704·4	44·5
October	629·7	655·2	681·6	699·9	70·2
November	621·8	641·8	645·2	655·9	34·1
1842.					
January	948·0	961·8	941·4	949·2	20·4
	938·1	956·0	935·0	937·5	21·0
February	907·4	918·8	907·2	921·8	14·6
March	882·9	887·7	864·9	878·4	22·8
	880·5	891·3	885·4	900·6	20·1
April	859·9	886·1	907·5	924·7	64·8
	868·4	867·1	848·8	870·1	21·3
May	858·0	841·6	837·9	845·2	20·1
June	820·0	815·2	801·6	812·4	18·4
July	783·3	772·8	777·2	814·9	42·1
August	774·3	768·4	764·4	793·9	29·5
September	769·6	778·4	781·1	795·9	26·3
October	769·1	776·7	769·1	775·9	7·6
	755·5	769·3	760·6	771·8	16·3
November	731·4	747·6	747·1	750·9	19·5
December	705·2	710·1	709·4	709·4	4·9

None of the months in 1841 are comparable with those of 1842; and only October and November in 1841 are comparable with each other. Those months for which two values of T (the time of the Balance needle's vibration in a vertical plane) are used, have the means of the readings corrected according to each value of T given separately.

Another value of q having been obtained from the Daily Observations in 1843–4, has been applied, and the following Tables formed.

TABLE XVI.—The Monthly Means of the Balance Magnetometer Readings, *Corrected by a new value of q*, for the Hours 20, 23, 2, and 5.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.	Range from the Four Hours for Each Month.	Range from the Four Hours for Two Months.
1841.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
July	803·5	813·4	838·5	861·6		58·1	40·3
August	803·7	807·4	804·9	826·3		22·6	39·0
September	723·6	741·7	749·2	779·0		55·4	67·0
October	664·5	691·8	723·9	743·2	705·8	78·7	61·3
November	644·0	664·6	675·1	687·9	667·9	43·9	
1842.							
January	983·9	1000·0	992·0	1000·5	994·1	16·6	23·8
February	964·0	977·1	974·4	995·1	977·6	31·1	25·5
March	926·3	937·1	928·3	946·3	934·5	20·0	35·5
April	904·9	919.8	930·6	955·9	927·8	51·0	32·7
May	918·2	904·6	906·7	919·1	912·1	14·5	15·4
June	895·0	892·9	885·3	901·6	893·7	16·3	34·2
July	856·6	848·8	858·7	901·0	866·3	52·2	44·4
August	856·0	852·2	855·5	888·9	863·1	36·7	37·7
September	837·3	847·4	856·4	876·1	854·3	38·8	35·0
October	816·7	831·5	833·8	847·9	832·5	31·2	35·0
November	794·7	814·8	825·5	833·5	817·1	38·8	26·6
December	782·4	788·9	793.0	796·9	790·3	14·5	

The means for 1841 are not comparable with those for 1842; and of the months in 1841, only October and November are comparable with each other.

In the five months of 1841, the lowest reading is shewn at 20^h, the highest at 5^h; in August 1841, there is *a* maximum at 23^h, and *a* minimum at 2^h. The force increases in the remaining four months from 20^h till 5^h. In July, *a* minimum seems to occur *after* 20^h; and in September, the force increases but slightly from 23^h till 2^h.

In 1842, the highest reading is at 5^h. In January, February, and March, *a* maximum occurs about 23^h, and *a* minimum about 2^h; the lowest readings in these three months is at 20^h.

In April, and the last four months of the year, the readings increase from 20^h till 5^h.

In May *a* minimum occurs about 0^h, in June about 0^h, in July and August about 23^h. The minimum thus seems to shift from January till June, and from June till December, occurring probably before 20^h in the winter, and about 1^h in midsummer.

The means of the four hours shew a continued diminution of the vertical force, which is irregular from month to month.

The ranges for each month, and for each two months, are irregular; they shew, on the whole, an increase of range in the summer compared with the winter months.

The following Table has been formed from the above.

TABLE XVII.—The Means of the Balance Magnetometer Readings, for periods of Three Months, for the Summer and Winter Months, and for the year 1842.

Periods.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean.	Range.
	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
1841.						
July, Aug., Sept.	776·9	787·5	797·5	822·3		45·4
October, November	654·2	678·2	699·5	715·5		61·3
1842.						
Jan., Feb., March	958·1	971·7	964·9	980·6	968·8	22·5
April, May, June	906·0	905·8	907·5	925·5	911·2	19·7
July, Aug., Sept.	850·0	849·5	856·9	888·7	861·3	39·2
Oct., Nov., Dec.	797·9	811·7	817·4	826·1	813·3	28·2
Jan., Feb., March, Oct., Nov., Dec.	878·0	891·7	891·1	903·3	891·0	25·3
April, May, June, July, Aug., Sept.	878·0	877·6	882·2	907·1	886·2	29·1
The Year.	878·0	884·7	886·7	905·2	888·6	27·2

In the periods of 1841, the force increases from 20^{h} till 5^{h}.

The first quarter of 1842 shews a minimum to occur about 20^{h}, and before 2^{h}; in the second quarter, the minimum seems about 23^{h}; the third, between 20^{h} and 23^{h}; and in the last quarter, about 20^{h}. The highest mean is always at 5^{h}. The means for the winter months exhibit *a* minimum about 2^{h}; the means for the summer months have *a* minimum between 20^{h} and 23^{h}.

The means for the year exhibit an increase of force from 20^{h} till 5^{h}, the increase from 23^{h} till 2^{h} being very small.

The mean of the four observations for each quarterly period shews a very regular diminution of vertical force. The ranges are still irregular.

The following Table has been formed by rejecting disturbances, according to the rule given after Table I.

TABLE XVIII.—The Monthly Mean Readings of the Balance Magnetometer, for the Hours 20, 23, 2, and 5, as Corrected in Table XVII., and *rejecting disturbances.*

Month.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours for each Month.	Range of the Four Hours: For each Month.	Range of the Four Hours: For each two Months.
	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
1841.							
July	818·8	817·1	836·1	860·6		43·5	31·0
August	808·7	809·5	799·1	817·6		18·5	26·2
September	731·4	745·4	737·2	765·4		34·0	28·9
October	683·1	691·9	690·9	706·9	693·2	23·8	22·2
November	654·4	657·3	665·5	675·1	663·1	20·7	16· ?

TABLE XVIII.—*continued.*

Month.	20h.	23h.	2h.	5h.	Mean of the Four Hours of each Month.	Range of the Four Hours For each Month.	Range of the Four Hours For each Two Months.
1842.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.	Mic. Div.
							11· ?
January	987·2	995·3	992·4	998·3	993·3	11·1	
							9·6
February	973·1	981·2	977·6	979·9	977·9	8·1	
							11·5
March	928·2	937·7	928·1	943·0	934·2	14·9	
							18·2
April	924·2	920·9	915·4	936·9	924·3	21·5	
							32·9
May	918·1	904·0	899·6	944·0	916·4	44·4	
							29·4
June	895·9	893·0	886·1	900·6	893·9	14·5	
							32·9
July	884·9	849·2	841·2	892·5	866·9	51·3	
							32·6
August	860·9	854·0	847·0	860·0	855·5	13·9	
							21·4
September	839·8	847·9	855·9	868·8	853·1	29·0	
							27·3
October	817·4	827·3	825·2	843·1	828·2	25·7	
							24·7
November	801·9	814·4	821·5	826·1	816·0	24·2	
							18·4
December	782·4	788·7	793·0	795·1	789·8	12·7	

The rejection of disturbances produces a considerable difference in the results deduced from Tables XVI. and XVII.

In 1841, the highest means occur at 5h; the lowest mean in July is at 23h, in August at 2h, and in September, October, and November, at 20h.

A maximum occurs in August, September, and October, about 23h.

A minimum occurs in July, between 20h and 23h, in August, September, and October, about 2h.

In 1842, the highest means, with two exceptions, are at 5h; in February, the highest is at 23h, and in August, at 20h; but they differ little from the mean at 5h.

The lowest means in the first three and last four months of the year are at 20h. In the remaining months at 2h. In March, the means at 20h and 2h are equal.

A maximum occurs in January, February, and March, about 23h, in October about 22h.

A minimum occurs in January about 2h, in February between 2h and 5h, in March, April, May, June, July, August, and October, between 23h and 2h.

The mean of the four hours for each month shews a decrease of vertical force from the beginning to the end of the year; the diminution from month to month is rather irregular.

The ranges for each month are irregular; but when the mean of each two months is taken, the increase of range from summer to winter is very regular, and well marked.

The following Table is formed from Table XVIII.

TABLE XIX.—The Means of the Balance Magnetometer Readings *minus* the least Mean, in parts of the whole Vertical Force, for periods of Three Months, in 1841 and 1842, for the Summer and Winter Months, and Year of 1842.

Periods.	20^h.	23^h.	2^h.	5^h.	Mean.	Range.
1841. July, Aug., Sept.	0·00000	0·00006	0·00006	0·00037		0·00037
Oct. and Nov.	0·00000	0·00008	0·00012	0·00029		0·00029
1842. Jan., Feb., March	0·00211	0·00222	0·00215	0·00225	0·00218	0·00014
April, May, June	0·00146	0·00137	0·00130	0·00165	0·00144	0·00035
July, Aug., Sept.	0·00080	0·00065	0·00062	0·00095	0·00075	0·00033
Oct., Nov., Dec.	0·00000	0·00012	0·00016	0·00027	0·00014	0·00027
Jan., Feb., March, Oct., Nov., Dec.	0·00105	0·00117	0·00115	0·00126	0·00116	0·00021
April, May, June, July, Aug., Sept.	0·00113	0·00101	0·00096	0·00130	0·00109	0·00034
The Year	0·00109	0·00109	0·00106	0·00128	0·00113	0·00022

The means for July, August, and September 1841, indicate a maximum before 23^h, and a minimum before 2^h; the means of October and November 1841 still indicate a maximum before 23^h, and a minimum before 2^h, but it is much less evident.

In the first quarter of 1842, a maximum at 23^h, and a minimum at 2^h, are well indicated; in the second and third quarters, only the minimum before 2^h is evident, but a maximum in both cases probably occurs between 20^h and 23^h.

The last quarter of 1842 has the same character as that for 1841.

The means for the winter months shew a maximum before 23^h, and a minimum nearer 2^h than 23^h. The means for the summer months shew the minimum about the same time as in the winter months, but the maximum earlier. The means for the year 1842 shew a maximum between 20^h and 2^h, and a minimum about 1^h.

In forming the above Table k was taken $= 0·000013$.

TABLE XX.—The greatest and least Readings of the Balance Magnetometer for each Month from the Daily Observations.

Month.	Balance Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h.	Mic. Div.	d. h.	Mic. Div.	Mic. Div.
July	19 20	733·2	17 5	916·7	183·5
August	26 20	707·0	6 5	907·0	200·0
September	24 20	639.0	25 2	990·2	351·2
October	20 20	549·9	25 2	1181·1	631·2
November	3 20	526·6	20 2	769·5	242·9

TABLE XX.—*continued.*

Month.	Balance Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1842.	d. h.	Mic. Div.	d. h.	Mic. Div.	Mic. Div.
January	31 20	955·8	18 5	1038·2	82·4
February	11 20	852·3	17 5	1138·6	286·3
March	23 5	879·7	28 5	1003·2	123·5
April	14 20	609·3	15 5	1097·4	488·1
May	28 2	873·1	16 5	1087·4	214·3
June	10 2	845·1	24 2	930·6	85·5
July	1 20	693·7	4 2	1140·8	447·1
August	5 20	786·8	19 5	1228·5	441·7
September	28 20	810·5	2 5	940·5	130·0
October	13 2	811·8	19 2	929·0	117·2
November	21 20	701·0	22 5	906·1	205·1
December	21 23	769·4	9 5	842·7	73·3

The range of the Daily Observations in 1841, in parts of the whole Vertical Force, is 0·00820; the greatest and least occur in October, and are 0·00634 *above*, and 0·00186 *below*, the mean of the month.

The range of the Daily Observations in 1842 is 0·00894; the greatest force being in August 0·00485 *above* the mean of the month, and the least occurs in April, being 0·00409 *below* the mean of the month.

TABLE XXI.—The greatest and least Readings of the Balance Magnetometer for each of the Term-Days.

Month.	Balance Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h. m.	Mic. Div.	d. h. m.	Mic. Div.	Mic. Div.
July	21 16 47½	761·1	21 10 17½	862·9	101·8
August	17 12 57½	541·1	28 6 57½	897·5	356·4
September	22 10 7½	671·7	23 9 57½	743·9	72·2
October	20 19 27½	514·9	21 4 17½	822·7	307·8
November	27 1 57½	646·5	26 11 57½	678·0	31·5
December	22 18 57½	620·3	22 10 27½	716·6	96·3

TABLE XXI.—*continued.*

Month.	Balance Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1842.	d. h. m.	Mic. Div.	d. h. m.	Mic. Div.	Mic. Div.
January	19 12 40	972·0	20 9 58	1038·1	66·1
February	25 20 10	937·6	26 0 28	973·3	35·7
March	23 12 58	574·9	23 10 4	991·2	416·3
April	20 16 28	783·9	21 5 28	1024·4	240·5
May	27 13 34	844·6	27 18 52	921·1	76·5
June	22 15 28	787·1	23 7 52	953·7	166·6
July	20 13 16	825·2	21 7 52	896·6	71·4
August	26 13 52	764·9	26 10 4	854·8	89·9
September	21 13 46	716·5	22 4 58	871·2	154·7
October	19 13 46	772·8	19 20 52	856·3	83·5
November	25 16 52	785·6	26 2 16	824·5	38·9
December	20 22 28	760·6	21 3 52	807·0	46·4

The range of the Term-Day Observations in 1841 is about 0·00516, in parts of the whole Vertical Force.

The greatest force occurs in October, being 0·00168 *above* the mean of the month ; the least occurs in August, being 0·00348 *below* the mean of the month.

In 1842, the range is about 0·00644, in parts of the whole Vertical Force.

The greatest force occurs in April, being 0·00130 *above* the mean of the month ; and the least in March, being 0·00514 *below* the mean of the month.

TABLE XXII.—The greatest and least Readings of the Balance Magnetomer during Extra Observations for each Month in which Extra Observations were made.

Month.	Balance Magnetometer.				Range.
	Lowest.		Highest.		
	Göttingen Mean Time.	Reading.	Göttingen Mean Time.	Reading.	
1841.	d. h. m. s.	Mic. Div.	d. h. m. s.	Mic. Div.	Mic. Div.
August	20 22 57 30	789	20 22 47 30	793	4
September	25 6 1 30	699	25 4 6 30	1150	451
1842.					
May	25 3 26 0	890	16 5 23 0	1166	276
July	2 11 48 0	160	2 0 53 0	1200	1040
August	16 20 36 0	781	19 4 58 0	1229	448
September	20 19 58 0	814	2 3 34 0	995	181
October	17 4 58 0	821	17 5 40 0	871	50
November	21 19 56 0	691	3 7 56 0	955	264
December	5 20 52 0	744	9 7 4 0	964	220

The range of the observed portion of the disturbance September 1841, is 0·00685 ; the greatest force being 0·00526 *above*, and the least 0·00060 *below*, the mean of the month.

The range of the disturbances of 1842 is 0·01405.

The least force occurs in July, being 0·00919 *below* the mean of the month ; the greatest occurs in August, being 0·00486 *above* the mean of the month.

The range of all the observations in 1841 is about 0·00982 ; the lowest occurring in the August term, being 0·00348 *below* the mean of the month, and the highest on October 25, being 0·00634 *above* the mean of the month.

The range of all the observations in 1842 is that of the disturbances given above.

TABLE XXIII.—Containing the Days of Disturbance and the Ranges of the Three Magnetometers from the Observations at 20^h, 23^h, 2^h and 5^h.

Göttingen Mean Time.	Range.			Göttingen Mean Time.	Range.		
	Declinometer.	Bifilar Magnetometer.	Balance Magnetometer.		Declinometer.	Bifilar Magnetometer.	Balance Magnetometer.
1841. d. h. d. h.	′	Sc. Div.	Mic. Div.	1842. d. h. d. h.	′	Sc. Div.	Mic. Div.
July 14 20—15 5	19·11	35·1	84·7	Jan. 17 20—18 5	1·31	17·4	70·6
19 20—20 5	2·88	52·3	147·8	Feb. 0 20— 1 5	3·91	16·0	82·7
20 20—21 5	13·17	57·1	69·1	6 20— 7 5	11·08	17·8	47·9
Aug. 5 20— 6 5	6·95	55·7	119·0	11 20—12 5	8·05	19·1	140·1
6 20— 7 5	9·08	17·4	76·3	16 20—17 5	22·15	15·4	181·3
23 20—24 5	13·40	42·8	50·3	17 20—18 5	19·19	21·9	127·5
26 20—27 5	13·07	21·5	140·4	23 20—24 5	……	21·5	103·0
Sept. 0 20— 1 5	9·00	52·4	……	27 20—28 5	6·19	9·6	61·0
12 20—13 5	16·88	29·1	158·1	March 18 20—19 5	13·78	21·2	52·6
24 20—25 5	22·69	359·2	351·2	27 20—28 5	7·35	43·8	104·5
26 20—27 5	9·88	49·1	235·5	29 20—30 5	11·67	23·7	56·0
28 20—29 5	3·62	29·1	190·9	April 10 20—11 5	9·88	40·4	191·9
Oct. 7 20— 8 5	15·55	42·7	116·7	11 20—12 5	14·12	19·9	93·1
8 20— 9 5	4·23	33·1	60·3	12 20—13 5	17·85	67·4	181·2
11 20—12 5	5·96	43·3	19·7	14 20—15 5	15·41	103·2	488·0
20 20—21 5	6·50	21·1	249·7	15 20—16 5	9·88	29·5	79·1
24 20—25 5	18·45	155·7	605·3	18 20—19 5	9·98	26·1	80·7
25 20—26 5	18·31	16·4	300·3	20 20—21 5	7·13	16·1	81·8
27 20—28 5	8·29	16·0	154·5	24 20—25 5	16·78	25·1	11·1
Nov. 3 20— 4 5	18·86	34·9	242·5	May 15 20—16 5	23·66	55·0	186·7
4 20— 5 5	15·71	16·0	120·5	16 20—17 5	11·18	20·6	80·0
9 20—10 5	7·00	4·3	27·2	18 20—19 5	11·29	14·6	65·0
17 20—18 5	3·93	23·4	11·5	June 3 20— 4 5	15·62	22·4	47·3
18 20—19 5	14·45	62·9	148·0	9 20—10 5	14·68	26·8	74·9
19 20—20 5	7·40	37·2	149·1	12 20—13 5	11·46	25·5	71·0
22 20—23 5	4·97	12·1	35·0	13 20—14 5	8·40	51·6	87·6

TABLE XXIII.—*continued.*

Göttingen Mean Time.	Range.			Göttingen Mean Time.	Range.		
	Declinometer.	Bifilar Magnetometer.	Balance Magnetometer.		Declinometer.	Bifilar Magnetometer.	Balance Magnetometer.
1842. d. h. d. h.	′	Sc. Div.	Mic. Div.	1842. d. h. d. h.	′	Sc. Div.	Mic. Div.
July 1 20— 2 5	11·62	77·5	193·9	Oct. 12 20—13 5	10·15	0·8	96·5
3 20— 4 5	9·37	180·0	548·2	13 20—14 5	7·45	8·9	89·5
8 20— 9 5	5·77	37·0	180·7	16 20—17 5	15·84	28·1	44·6
22 20—23 5	7·57	42·1	79·3	18 20—19 5	11·46	13·5	127·1
Aug. 0 20— 1 5	10·48	38·9	98·8	Nov. 1 20— 2 5	7·60	5·6	50·7
5 20— 6 5	10·75	33·4	181·7	9 20—10 5	12·35	24·4	115·7
17 20—18 5	7·85	35·3	106·9	10 20—11 0	10·20	13·9	90·2
18 20—19 5	7·48	78·0	411·2	20 20—21 5	3·09	16·7	53·7
23 20—24 5	14·77	11·4	82·8	21 20—22 5	7·79	35·4	205·1
Sept. 1 20— 2 5	8·55	18·2	106·2	22 20—23 5	5·26	28·5	60·1
8 20— 9 5	11·21	36·5	69·9	Dec. 5 20— 6 5	5·30	11·4	16·4
12 20—13 5	16·25	38·7	26·9	7 20— 8 5	9·44	7·7	24·1
16 20—17 5	7·13	13·3	96·0	8 20— 9 5	2·09	12·4	58·7
28 20—29 5	12·83	40·5	115·8	29 20—30 5	7·39	14·7	38·1
Oct. 7 20— 8 5	10·68	26·9	25·6				

The above Table has been formed thus; if *a*, *b*, and *c*, be the mean range for three successive months, as given in Tables I., IX., and XVI., those days in the month whose range is *b*, have been considered days of disturbance if the range of the four daily observations, for any of the three Magnetometers, exceeds $\frac{a + 2\,b + c}{2}$. When there is not a month preceding or succeeding, the sum $b + c$ or $a + b$ has been used.

In many of the days only one or two of the instruments shew ranges exceeding the test. In the formation of Tables II., X., and XVIII., those days only have been rejected in which the range for the instrument to which the Table belongs has exceeded the test. All the ranges of the two force Magnetometers given above have been corrected by the new values of *q*.

The following Table contains several days in which the irregularity is well marked, but which are not included in the above.

TABLE XXIV.—Days of Marked Irregularity not determined by the Rule used in the formation of Table XXIII.

1841.				1842.	
	d. d.		d. d.		d. d.
August	15—16	November	8— 9	February	1— 2
September	18—19		9—10	April	0— 1
	23—24		10—11	April	25—26
	29—30		11—12	July	4— 5
October	6— 7		12—13	August	4— 5
	12—13		22—23	November	1— 2

TABLE XXV.—Monthly Means of Magnetic Dip, from Observations of Needle No. 1.

Month.	Number of Observations.		Magnetic Dip.							
			A. M.	P. M.	Mean of A. M. and P. M.	A. M. *minus* P. M.	From Three Months.			
	A. M.	P. M.					A. M.	P. M.	Mean.	A. M. *minus* P. M.
1841.			° ′	° ′	° ′	′	71°	71°	71°	
September	1	2	71 14·19	71 14·18	71 14·18	+ 0·01				
October	4	4	71 18·67	71 14·14	71 16·40	+ 4·53	15·00	13·79	14·39	+ 1·21
November	5	4	71 12·23	71 13·25	71 12·74	− 1·02				
December		1		71 11·31						
1842.										
January	3	2	71 9·94	71 10·66	71 10·30	− 0·72				
February	3	4	71 13·53	71 14·04	71 13·88	− 0·51	11·74	11·99	11·86	− 0·25
March	4	4	71 11·75	71 10·61	71 11·18	+ 1·14				
April	4	5	71 15·58	71 13·43	71 14·50	+ 2·15				
May	4	3	71 12·03	71 12·92	71 12·47	− 0·89	13·35	12·32	12·83	+ 1·03
June	4	4	71 12·45	71 10·47	71 11·46	− 0·02				
July	3	5	71 14·60	71 13·20	71 13·90	+ 1·40				
August	5		71 13·81		71 13·45 ?		13·70	12·98	13·34	+ 0·72
September	4	5	71 12·87	71 12·75	71 12·81	+ 0·12				
October	5	3	71 10·57	71 11·12	71 10·84	− 0·55				
November	3	3	71 9·13	71 6·60	71 7·86	+ 2·53	9·77	9·08	9·42	+ 0·69
December	4	2	71 9·25	71 9·50	71 9·37	− 0·25				

The above Table has been formed by subtracting 12′ from the means of the original observations, as a correction for the axle and copper circle. The A.M. observations were made between 20^h and 21^h; the P.M. observations about 6^h.

The diminution of Dip in 12 months has been deduced from four comparisons, as under :—

Sept., Oct., and Nov. 1841, compared with Sept., Oct., and Nov. 1842, gives $\Delta\theta = -3'{\cdot}59$.
.... Oct., Nov., and Dec. 1842, ... $= -4'{\cdot}59$.
Oct. and Nov. 1841, ... Oct. and Nov. 1842, ... $= -5'{\cdot}22$.
.... Nov. and Dec. 1842, ... $= -5'{\cdot}91$.
Mean of all $= -4'{\cdot}83$.

In all cases, the means of all the observations in the given period has been used, and not the mean of the monthly means for the period.

With the exception of the first quarter of 1842, the quarterly means give the Dip greater in the morning than in the evening; giving the quarterly differences A.M. *minus* P.M. equal values the mean of the whole is $0'{\cdot}68$.

The observations of 1842 evince a greater difference in summer than in winter.

TABLE XXVI.—Mean Magnetic Dip for periods of Six Months, and for the Year 1842.

Period.	Magnetic Dip.			
	A. M.	P. M.	Mean.	A. M. *minus* P. M.
1842.	° ′	° ′	° ′ ″	′
First Six Months	71 12·62	71 12·17	71 12·39	+ 0·45
Last Six Months	71 11·73	71 11·22	71 11·47	+ 0·51
First and Last Quarters	71 10·75	71 10·53	71 10·64	+ 0·22
Second and Third Quarters	71 13·52	71 12·65	71 13·08	+ 0·87
The Year	71 12·16	71 11·74	71 11·95	+ 0·42
Three Months of 1841 and Twelve Months of 1842	71 12·66	71 12·15	71 12·40	+ 0·51

TABLE XXVII.—Monthly Mean Values of $\Delta \theta$, the Differences of Magnetic Dip, for the Observation Hours of 1842, deduced from Tables X. and XVIII.; the value of $\Delta \theta$ December 2^h being taken as Zero.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.	Range.	Mean of 20^h and 5^h.	Difference of 20^h and 5^h.
January	6′·11	6′·62	5′·56	5′·71	6′·00	1′·06	5′·91	0′·40
February	6·04	6·51	5·63	5·16	5·83	1·35	5·60	0·88
March	5·18	5·99	4·51	4·01	4·92	1·98	4·59	1·17
April	5·59	6·17	4·61	3·56	4·98	2·61	4·57	2·03
May	4·62	5·12	3·39	3·26	4·10	1·86	3·94	1·36
June	4·34	4·84	2·95	2.06	3·55	2·78	3·20	2·28
July	4·22	4·42	2·40	2·05	3·27	2·37	3·13	2·17
August	3·83	4·45	2·28	1·73	3·07	2·72	2·78	2·10
September	2·88	3·83	2·21	1.99	2·73	1·84	2·43	0·89
October	1·64	2·47	1·38	1·44	1·73	1·03	1·54	0·20
November	1·15	1·60	0·97	0·95	1·17	0·65	1·05	0·20
December	0·23	0·60	0·00	0·07	0·22	0·60	0·15	0·16

The Table above was computed from the formula

$$\Delta \theta = \tfrac{1}{2} \sin 2\theta \left\{ \frac{\Delta Y}{Y} - \frac{\Delta X}{X} \right\}$$

$\frac{\Delta Y}{Y}$ was obtained from Table X., and $\frac{\Delta X}{X}$ from Table XVIII.; θ being taken at 71° 18′.

The following Table has been formed from the above.

TABLE XXVIII.—Mean Values of $\Delta \theta$ for Three Months, for the Summer and Winter Months, and for the Year 1842.

Period.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.	Range.	Mean of 20^h and 5^h.	Difference of 20^h and 5^h.
1842.								
Jan., Feb., March	5′·78	6′·37	5′·23	4′·96	5′·58	1′·41	5′·37	0′·82
April, May, June	4·85	5·38	3·65	2·96	4·21	2·42	3·90	1·89
July, Aug., Sept.	3·64	4·23	2·30	1·92	3·02	2·31	2·78	1·72
Oct., Nov., Dec.	1·01	1·56	0·78	0·82	1·04	0·78	0·91	0·19
Jan., Feb., March, Oct., Nov., Dec.	3·39	3·96	3·00	2·89	3·31	1·07	3·14	0·50
April, May, June, July, Aug., Sept.	4·24	4·80	2·97	2·44	3·61	2·36	3·34	1·80
The Year	3·82	4·38	2·99	2·66	3·46	1·72	3·24	1·16

The columns containing the means and differences of 20^h and 5^h have been given for comparison with the Magnetic Dip, obtained from the Inclinometer at these hours.

The winter months indicate a maximum Dip about 23^h, and a minimum between 2^h and 5^h, apparently nearer 5^h than 2^h in the first quarter of 1842, but nearer 2^h than 5^h in the last quarter. The maximum seems to occur somewhat earlier, and the minimum later, in the summer than in the winter months.

The ratio of the difference of Dip at 20^h and 5^h in winter to that in summer is nearly the same from both Tables XXVI. and XXVIII., though the quantities arerather different.

The annual diminution of Dip from Table XXVII. appears greater than that from the observation of the Inclinometer.

TABLE XXIX.—Monthly Mean Values of $\frac{\Delta R}{R}$, the Differences of Total Magnetic Intensity, in parts of the whole force, for the Observation Hours of 1842; deduced from Tables X. and XVIII., the value of $\frac{\Delta R}{R}$ December 20^h being taken as Zero.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.	Range	
						For each Month.	For each Two Months.
January	0·00208	0·00214	0·00220	0·00227	0·00217	0·00019	0·00018
February	0·00191	0·00196	0·00200	0·00208	0·00199	0·00017	0·00024
March	0·00140	0·00146	0·00147	0·00172	0·00151	0·00032	0·00039
April	0·00131	0·00121	0·00130	0·00168	0·00137	0·00047	0·00058
May	0·00132	0·00110	0·00121	0·00180	0·00136	0·00070	0·00053
June	0·00107	0·00099	0·00108	0·00136	0·00112	0·00037	0·00058
July	0·00094	0·00046	0·00055	0·00125	0·00080	0·00079	0·00056
August	0·00067	0·00052	0·00064	0·00086	0·00067	0·00034	0·00040
September	0·00049	0·00050	0·00076	0·00095	0·00067	0·00046	0·00040
October	0·00032	0·00035	0·00045	0·00067	0·00045	0·00035	0·00034
November	0·00016	0·00028	0·00044	0·00049	0·00034	0·00033	0·00026
December	0·00000	0·00005	0·00016	0·00019	0·00010	0·00019	

This Table has been computed from the formula $\frac{\Delta R}{R} = \sin^2 \theta \frac{\Delta Y}{Y} + \cos^2 \theta \frac{\Delta X}{X}$.

TABLE XXX.—Mean Values of $\frac{\Delta R}{R}$ for Three Months, for the Summer and Winter Months, and for the Year 1842.

Period.	20^h.	23^h.	2^h.	5^h.	Range.	Mean of the Four Hours.
1842.						
Jan., Feb., March	0·00180	0·00185	0·00189	0·00202	0·00022	0·00189
April, May, June	0·00123	0·00110	0·00120	0·00161	0·00051	0·00128
July, Aug., Sept.	0·00070	0·00049	0·00065	0·00102	0·00053	0·00071
Oct., Nov., Dec.	0·00016	0·00023	0·00035	0·00045	0·00029	0·00030
Jan., Feb., March, Oct., Nov., Dec.	0·00098	0·00104	0·00112	0·00123	0·00025	0·00109
April, May, June, July, Aug., Sept.	0·00096	0·00080	0·00092	0·00132	0.00052	0·00100
The Year	0·00097	0·00092	0·00102	0·00128	0·00036	0·00105

A maximum of total intensity probably occurs in the winter months before 23^h, and a minimum between 23^h and 2^h.

The maximum seems to occur earlier in the summer months, and the minimum nearer 23^h than 2^h.

The total intensity decreases from quarter to quarter, the rapidity of decrease diminishing rather regularly.

ABSTRACTS OF THE RESULTS

OF THE

METEOROLOGICAL OBSERVATIONS,

MADE AT THE OBSERVATORY OF

GENERAL SIR T. M. BRISBANE, BART.,

MAKERSTOUN.

1841 AND 1842.

TABLE I.—Monthly Means of the Height of the Barometer, corrected for temperature.

Month.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.
1841.	in.	in.	in.	in.	in.
July	29·435	29·470	29·482	29·487	29·468
August	29·576	29·566	29·553	29·569	29·566
September	29·479	29·492	29·487	29·468	29·481
October	29·350	29·392	29·363	29·382	29·372
November	29·433	29·493	29·450	29·440	29·454
1842.					
January	29·594	29·611	29·568	29·568	29·585
February	29·592	29·609	29·606	29·641	29·611
March	29·502	29·500	29·483	29·459	29·486
April	29·980	29·978	29·923	29·905	29·946
May	29·656	29·643	29·602	29·601	29·625
June	29·780	29·773	29·765	29·742	29·765
July	29·680	29·676	29·657	29·651	29·666
August	29·718	29·721	29·731	29·717	29·722
September	29·664	29·669	29·635	29·630	29·650
October	29·692	29·695	29·678	29·665	29·682
November	29·440	29·451	29·454	29·450	29·449
December	29·618	29·655	29·655	29·673	29·650

		in.
Mean Height of the Barometer for the five months of...........	1841,	29·460.
............................corresponding..........................	1842,	29·634.

A maximum pressure occurs in both years in August, and a minimum in October 1841 and in November 1842.

The greatest mean pressure is that for April 1842 ; the least that for October 1841 ; the range being 0·574 in.

TABLE II.—Mean Height of the Barometer for periods of Three Month, for the Summer and Winter Months of 1842, and for the Year 1842.

Period.	20^{h}.	23^{h}.	2^{h}.	3^{h}.	Mean of the Four Hours.
1841.	in.	in.	in.	in.	in.
July, Aug., Sept.	29·497	29·509	29·507	29·508	29·505
October, November	29·391	29·442	29·406	29·411	29·412
1842.					
Jan., Feb., March	29·563	29·573	29·552	29·556	29·561
April, May, June	29·805	29·798	29·763	29·749	29·779
July, Aug., Sept.	29·687	29·689	29·674	29·666	29·679
Oct., Nov., Dec.	29·583	29·600	29·596	29·596	29·594
Jan., Feb., March, Oct., Nov., Dec.	29·573	29·586	29·574	29·576	29·577
April, May, June, July, Aug., Sept.	29·746	29·743	29·718	29·707	29·729
The Year	29·660	29·665	29·646	29·642	29·653

A maximum seems to occur about 23^{h} in winter, and before 23^{h} in summer ; a minimum between 2^{h} and 5^{h} in winter, and nearer 5^{h} than 2^{h} in summer.

The pressure in the three months, July, August, and September 1841, is about as much greater than that in the two following months, as the pressure in the third quarter of 1842 is greater than that in the last quarter.

TABLE III.—Containing the Highest and Lowest Readings of the Barometer, corrected for Temperature, in each Month, as obtained from all the Observations.

Month.	Göttingen Mean Mime.	Highest Barometer.	Göttingen Mean Time.	Lowest Barometer.	Range for the Month.	Mean of the Highest and Lowest.
	d. h.	in.	d. h.	in.	in.	in.
1841.						
July	23 5	29·819	20 23	29·176	0·643	29·497
August	17 23 26 20	29·916	5 20	29·104	0·812	29·510
September	20 5	30·038	28 20	28·484	1·554	29·261
October	29 20	29·984	7 2	28·669	1·315	29·326
November	3 23	30·246	29 20	28·262	1·984	29·254
1842.						
January	18 5	30·136	26 5	28·509	1·627	29·322
February	15 20 15 23	30·203	25 19	28·821	1·382	29·512
March	22 23	30·113	19 5	28·898	1·215	29·505
April	15 23	30·154	1 2	29·072	1·082	29·613
May	15 20	30·276	7 5	28·539	1·737	29·407
June	11 23	30·187	25 5	28·950	1·237	29·568
July	14 23	30·127	4 20	28·987	1·140	29·557
August	15 23	30·097	10 20	29·334	0·763	29·715
September	29 2	30·245	9 5	29·035	1·210	29·640
October	8 2	30·304	22 5	28·631	1·673	29·467
November	17 5	30·249	24 20	28·553	1·696	29·401
December	8 23	30·263	25 20	28·764	1·499	29·513

			in.
The greatest height of the Barometer in the five months of 1841 was in		November,	30·246.
The least		November,	28·262.
The greatest	twelve months ···1842	October,	30·304.
The least		January,	28·509.

While there is no marked difference in the summer and winter ranges of pressure to be deduced from the means at the observation hours, the *extreme* ranges of pressure are markedly greater in winter than in summer.

With two exceptions, the means of the highest and lowest are less than the means of the four hours.

TABLE IV.—Means of the Highest and Lowest Pressures in Table III.

Periods.	Highest.	Lowest.	Mean of Highest and Lowest.
	in.	in.	in.
Five Months of 1841	30·001	28·739	29·370
The same Five Months of 1842	30·204	28·908	29·556
The Year 1842	30·196	28·841	29·568

TABLE V.—Monthly Means of the Height of the Barometer *minus* the Pressure of Aqueous Vapour.

Month.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.
	in.	in.	in.	in.	in.
1841.					
July	29·092	29·118	29·121	29.114	29·111
August	29·200	29·167	29·152	29·167	29·171
September	29·133	29·108	29·084	29·075	29·100
October	29·099	29·129	29·094	29·106	29·107
November	29·226	29·281	29·218	29·209	29·233
1842.					
January	29·402	29·417	29·368	29·369	29·389
February	29·374	29·390	29·377	29·417	29·389
March	29·278	29·261	29·237	29·218	29·248
April	29·750	29·717	29·651	29·628	29·686
May	29·339	29·314	29·254	29·263	29·292
June	29·435	29·409	29·399	29·376	29·405
July	29·311	29·288	29·261	29·254	29·278
August	29·303	29·285	29·288	29·273	29·287
September	29·316	29·297	29·254	29·250	29·279
October	29·453	29·446	29·433	29·410	29·435
November	29·217	29·224	29·214	29·215	29·217
December	29·338	29·370	29·372	29·395	29·369

The greatest mean pressure of the dry air occurs in April 1842, the least in September 1841; the range being $\overset{\text{in.}}{0{\cdot}586}$, nearly the same as for the moist air.

TABLE VI.—Mean Height of the Barometer *minus* the Pressure of Aqueous Vapour, for periods of Three Months, for the Summer and Winter Months of 1842, and for the Year 1842.

Period.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.
	in.	in.	in.	in.	in.
1841.					
July, Aug., Sept.	29·142	29·131	29·119	29·119	29·128
October, November	29·162	29·205	29·156	29·157	29·170
1842.					
Jan., Feb., March	29·351	29·356	29·327	29·335	29·342
April, May, June	29·508	29·480	29·435	29·422	29·461
July, Aug., Sept.	29·310	29·290	29·268	29·259	29·282
Oct., Nov., Dec.	29·336	29·347	29·340	29·340	29·341
Jan., Feb., March, Oct., Nov., Dec.	29·343	29·351	29·333	29·337	29·341
April, May, June, July, Aug., Sept.	29·409	29·385	29·351	29·340	29·371
The Year.	29·376	29·368	29·342	29·339	29·356

A maximum in the pressure of the *dry* air occurs in the winter about 23^{h}, and in the summer nearer 20^{h} than 23^{h}.

A minimum occurs in the winter between 2^{h} and 5^{h}, and in the summer near 5^{h}?

The pressure of moist air, Table II., shews the same periods of maxima and minima.

The mean pressure of the dry air in summer differs much less from that in winter than in the case of moist air.

TABLE VII.—Containing the Monthly Means for the Dry and Wet Bulb Thermometers, at the Hours 20, 23, 2, and 5.

Month.	Dry Bulb Thermometer.					Wet Bulb Thermometer.			
	20h.	23h.	2h.	5h.	Mean of 20h and 23h.	20h.	22h.	2h.	5h.
1841.	°	°	°	°	°	°	°	°	°
July	52·9	56·2	58·8	58·6	54·5	50·1	52·0	53·5	53·9
August	54·1	58·8	60·7	60·5	56·4	52·0	55·0	55·9	55·8
September	50·5	56·0	58·4	57·7	53·2	49·1	53·2	55·0	54·3
October	42·1	45·1	47·1	45·9	43·6	40·5	42·7	44·0	43·7
November	33·9	37·2	40·3	38·5	35·5	33·6	35·3	38·5	37·4
1842.									
January	34·1	34·4	36·7	35·2	34·2	32·9	33·3	35·0	34·0
February	37·7	39·7	42·9	41·5	38·7	36·4	37·6	39·8	38·9
March	39·5	43·5	45·3	44·7	41·5	37·7	40·7	42·0	41·4
April	40·5	48·9	53·9	53·5	44·7	38·6	44·6	47·6	47·6
May	48·9	53·8	57·4	56·6	51·3	47·5	50·5	52·8	51·9
June	54·9	60·4	63·8	62·9	57·6	51·1	54·3	55·9	55·5
July	54·3	59·4	62·1	61·8	56·8	51·8	54·8	56·3	56·2
August	57·0	63·2	66·8	66·5	60·1	54·8	58·2	59·9	59·8
September	51·2	56·4	59·5	58·7	53·8	49·5	52·9	54·6	54·2
October	40·9	46·6	49·6	47·8	43·7	39·1	42·7	44·2	43·7
November	38·1	40·3	43·6	42·0	39·2	36·9	38·3	40·8	39·7
December	45·4	45·9	47·2	45·7	45·6	43·6	44·1	44·7	43·7

The mean of 20h and 23h for the dry bulb thermometer is given as an approximate mean temperature for the month.

The means for the wet bulb in the month of May 1842 are not strictly comparable with those for the dry bulb in the same month, as the readings of the wet bulb for a considerable period in May have been rejected. See note, page 84.

TABLE VIII.—Containing the Monthly Means, &c., for the Maximum and Minimum Self-Registering Thermometers.

Month.	Mean of the Daily			Mean Daily Range.	Maximum of the Month.		Minimum of the Month.		Mean.	Range of the Month.
	Maxima.	Minima.	Max. and Min.		Day.	Temperature.	Day.	Temperature.		
1841.	°	°	°	°		°		°	°	°
July	62·3	48·7	55·5	13·6	19	69·7	16	42·2	55·9	27·5
August	62·8	47·7	55·2	15·1	20	71·5	12	37·3	54·4	34·2
September	61·0	47·3	54·1	13·7	12	75·6	5	35·1	55·3	40·5
October	49·8	38·5	44·1	11·3	13	55·9	21	30·0	42·9	25·9
November	42·3	30·6	36·4	11·7	8	53·7	17	14·6	34·1	39·1
1842.										
January	37·0	27·6	32·3	9·4	19	43·6	23	18·4	31·0	25·2
February	44·2	33·1	38·6	11·1	11	50·0	6	22·1	36·0	27·9
March	47·9	34·8	41·3	13·1	24	55·9	8	30·0	42·9	25·9
April	55·9	33·3	44·6	22·6	21	66·8	8	27·2	47·0	39·6
May	61·4	41·8	51·6	19·6	13	66·9	2	28·8	47·8	38·1
June	66·9	46·8	56·8	20·1	13	80·8	2	36·4	58·6	44·4
July	65·1	47·4	56·2	17·7	23	78·1	6	38·4	58·2	39·7
August	68·6	51·2	59·9	17·4	18	82·3	24	36·7	59·5	45·6
September	61·8	47·3	54·5	14·5	14, 15	70·6	20	36·5	53·5	34·1
October	51·2	37·6	44·4	13·6	11	62·6	19	24·2	43·4	38·4
November	44·6	34·8	39·7	9·8	1	57·6	14	21·3	39.4	36·3
December	49·5	40·2	44·8	9·3	30	58·5	31	28·4	43·4	30·1

The maximum and minimum in the five months of 1841 are 75°·6 in September, and 14°·6 in November, the range being 61°·0. In the corresponding five months of 1842, they are 82°·3 in August, and 21°·3 in November, the range also being 61°·0.

TABLE IX.—Means of the Maxima and Minima of Temperature for periods of Three Months, &c.

Periods.	Mean of Daily			Mean Daily Range.	Mean of Monthly			Mean Monthly Range.
	Max.	Min.	Max. and Min.		Max.	Min.	Max. and Min.	
1841.	°	°	°	°	°	°	°	°
July, Aug., Sept.	62·0	47·9	54·9	14·1	72·3	38·2	55·2	34·1
Oct., Nov.	46·0	34·5	40·2	11·5	54·8	22·3	38·5	32·5
1842.								
Jan., Feb., March	43·0	31·8	37·4	11.2	49·8	23·5	36·6	26·3
April, May, June	61·4	40·6	51·0	20·8	71·5	30·8	51·1	40·7
July, Aug., Sept.	65·2	48·6	56·9	16·6	77·0	37·2	57·1	39·8
Oct., Nov., Dec.	48·4	37·5	42·9	10·9	59·6	24·6	42·1	35·0
The Year	54·5	39·7	47·1	14·8	64·5	29·0	46·7	35·5

The mean of the monthly maxima and minima for the third quarter of 1841, and for the second and third quarters of 1842, is 0°·2 greater than the mean of all the daily maxima and minima for the same periods. The mean of the monthly maxima and minima in the first and last quarters of 1842, is in each case 0°·8 less than the mean of all the daily maxima and minima for the same periods.

The mean of the maximum and minimum in each month of 1842 is 0°.4 less than the mean of all the daily maxima and minima in 1842.

TABLE X.—Monthly Means of the Pressure of Aqueous Vapour.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.
1841.	in.	in.	in.	in.	in.
July	0·343	0·352	0·361	0·373	0·357
August	·376	·399	·401	·402	·394
September	·346	·384	·403	·393	·381
October	·251	·263	·269	·276	·265
November	·207	·212	·232	·231	·220
1842.					
January	·192	·194	·200	·199	·196
February	·218	·219	·229	·224	·222
March	·224	·239	·246	·241	·237
April	·230	·261	·272	·277	·260
May	·317	·329	·348	·338	·333
June	·345	·364	·366	·366	·360
July	·369	·388	·396	·397	·387
August	·415	·436	·443	·444	·434
September	·348	·372	·381	·380	·370
October	·239	·249	·245	·255	·247
November	·223	·227	·240	·235	·231
December	·280	·285	·283	·278	·281

In forming the above Table, only those observations of the dry bulb thermometer were used which had corresponding observations of the wet bulb.

In the computations, Dr Apjohn's formula was used approximately, viz., $f''=f'-\frac{d}{88}$; 96 being substituted for 88 for temperatures below 32°. The values of f' were taken from the Table page xi. Introduction to the Greenwich Meteorological Observations for 1842.

TABLE XI.—Means of the Pressure of Aqueous Vapour for periods of Three Months, for the Summer and Winter Months 1842, and for the Year 1842.

Period.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.
1841.	in.	in.	in.	in.	in.
July, Aug., Sept.	0·355	0·378	0·388	0·389	0·377
Oct., Nov.	·228	·237	·250	·253	·242
1842.					
Jan., Feb., March	·211	·217	·225	·221	·218
April, May, June	·297	·318	·329	·327	·318
July, Aug., Sept.	·377	·399	·407	·407	·397
Oct., Nov., Dec.	·247	·254	·256	·256	·253
Jan., Feb., March, Oct., Nov., Dec.	·229	·235	·241	·239	·236
April, May, June, July, Aug., Sept.	·337	·358	·368	·367	·357
The Year	·283	·297	·304	·303	·297

The maximum pressure occurs between 2^{h} and 5^{h}, and it is greater in summer than in winter.

TABLE XII.—Monthly Means of the Relative Humidity, or of the ratio $\frac{\text{Pressure of Aqueous Vapour}}{\text{Pressure at Saturation}}$ for the Observation Hours, 20, 23, 2, and 5.

Month.	20^{h}.	23^{h}.	2^{h}.	5^{h}.	Mean of the Four Hours.
1841.					
July	0·833	0·764	0·718	0·748	0·766
August	·876	·793	·748	·756	·793
September	·911	·838	·812	·811	·843
October	·884	·832	·796	·852	·841
November	·949	·891	·864	·898	·900
1842.					
January	·889	·884	·839	·884	·874
February	·895	·836	·782	·803	·829
March	·862	·799	·774	·775	·802
April	·855	·725	·638	·658	·719
May	·854	·744	·704	·710	·753
June	·782	·687	·617	·635	·680
July	·854	·756	·706	·715	·758
August	·877	·749	·676	·685	·747
September	·895	·802	·740	·758	·799
October	·864	·749	·666	·737	·754
November	·897	·847	·800	·863	·852
December	·873	·880	·835	·863	·863

TABLE XIII.—Mean Relative Humidity for periods of Three Months, for the Summer and Winter Months 1842, and for the Year 1842.

Periods.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.
1841.					
July, Aug., Sept.	0·873	0·798	0·759	0·772	0·800
October, November	·916	·861	·830	·875	·870
1842.					
Jan., Feb., March	·882	·840	·798	·821	·835
April, May, June	·830	·719	·653	·668	·717
July, Aug., Sept.	·875	·769	·707	·719	·767
Oct., Nov., Dec.	·878	·825	·767	·821	·823
Jan., Feb., March, Oct., Nov., Dec.	·880	·832	·782	·821	·829
April, May, June, July, Aug., Sept.	·852	·744	·680	·693	·742
The Year.	·866	·788	·731	·757	·785

The humidity is least about 2^h in winter, and between 2^h and 5^h in summer; and is less in summer than in winter.

TABLE XIV.—Force of Wind at the Observation Hours, and Maximum Force between the Observation Hours.

Month.	20^h.	23^h.	2^h.	5^h.	5^h and 20^h.	20^h and 23^h.	23^h and 2^h.	2^h and 5^h.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
May	0·3	0·4	0·6	0·4				
June	0·3	0·4	0·6	0·5				
July	0·5	0·6	0·9	0·7				
August	0·4	0·6	0·7	0·7				
September	0·4	0·6	0·8	0·7				
October	0·4	0·8	0·8	0·6				
November	0·4	0·4	0·5	0·3	1·2	0·8	1·0	1·1
December	1·2	1·2	1·0	1·1	3·2	2·1	2·2	1·8
Means	0·5	0·6	0·7	0·6	2·2	1·4	1·6	1·4

The force of wind was estimated from May till the 21st of October, afterwards the pressures are from the Anemometer. The quantities from the Anemometer are lbs. pressure on the square foot of surface; the estimations have nearly the same value.

A maximum seems to occur about 2^h.

TABLE XV.—Mean quantity of Clouds from May till December 1842 at the Observation Hours.

Month.	20^h.	23^h.	2^h.	5^h.	Mean of the Four Hours.
May	7·5	6·5	6·6	6·5	6·8
June	6·0	6·3	5·5	6·6	6·1
July	8·1	8·1	8·1	6·7	7·7
August	7·4	7·9	7·3	7·3	7·5
September	8·2	8·8	8·4	7·1	8·1
October	6·3	5·5	6·2	7·3	6·3
November	8·0	7·6	7·8	8·5	8·0
December	7·4	7·2	7·0	7·5	7·3
Means	7·4	7·2	7·1	7·2	7·2

A maximum in the quantity of clouds seems to occur about 23^h in the months of June, July, August, and September, and a minimum about the same hour in the other months. The means for the 8 months at all the hours are almost exactly those for the month of December.

TABLE XVI.—Quantity of Rain for each Month at Makerstoun, from 1832 till 1842.

Month.	1832.	1833.	1834.	1835.	1836.	1837.		1838.		1839.		1840.		1841.		1842.			Means.		
	C.	C.	C.	C.	C.	C.	B.	C.	B.	C.	B.	C.	B.	C.	B.	C.	B.	A.	1832 to 1842.	1837 to 1842.	
																			C.	C.	B.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	1·5 ?	0·40	3·19	0·04	1·88	2·87	1·86 ?	2·01	1·47	1·59	0·77	2·89	1·84	2·33	1·29	1·64	1·09		1·849	2·222	1·387
February	1·29	1·97	1·05	2·84	2·53	1·43	0·93 ?	1·18	0·57	0·95 ?	0·63	1·46	1·08	1·14	0·72	1·31	0·98		1·559	1·245	0·818
March	0·71	2·77	0·73	1·25	2·23	1·93	1·23	1·85	1·16	1·92	2·06	0·77	0·51	1·35	0·99	2·24	1·78		1·614	1·677	1·288
April	0·83	1·14	1·23	0·68	1·45	2·84	2·18	1·50	1·15	0·28	0·28	0·08	0·01	1·78	1·47	0·08	0·05		1·081	1·093	0·857
May	1·95	0·81	0·66	1·67	0·46	1·02	0·82	1·81	1·65	0·40	0·23	3·50	3·04	1·49	1·13	2·12	1·75		1·445	1·723	1·437
June	4·37	3·41	1·79	0·47	2·14	2·05	1·93	4·08	3·78	2·66	2·26	3·17	2·73	1·74	1·17	1·49	1·24		2·488	2·532	2·185
July	0·53	1·83	3·55	0·86	3·96	5·30	5·01	2·37	2·17	2·00	1·72	2·90	2·58	2·48	2·14	1·70	1·49	1·800	2·498	2·792	2·518
August	3·74	1·31	3·70	2·00	2·91	2·96	2·64	2·52	2·34	2·01	1·64	2·13	1·91	3·85	3·53	1·88	1·74	2·201	2·637	2·558	2·300
September	1·18	2·13	2·97	2·75	1·93	2·06	1·75	2·90	2·79	3·94	3·25	2·93	2·49	3·41	2·93	2·75	2·49	3·080	2·632	2·998	2·617
October	3·43	1·88	2·04	2·96	3·08	1·25	0·96	2·25	1·74	3·09	2·21	1·82	1·59	5·50	4·80	1·19	0·93	1·319	2·590	2·517	2·038
November	2·97	1·20	1·70	3·61	3·01	1·43	1·15	1·98	1·77	2·61	1·86	2·52	2·03	2·43	2·34	1·84	1·43	1·846	2·300	2·135	1·763
December	1·61	3·75	1·21	1·28	4·25	1·82	1·56	0·61	0·43	1·89	1·34	0·78	0·67	1·83	1·41	1·56	1·07	2·102	1·872	1·415	1·080
Sums	24·11	22·60	23·82	20·41	29·83	26·96	22·02	25·06	21·02	23·34	18·25	24·95	20·48	29·33	23·92	19·80	16·04		24·565	24·907	20·288

From the observations of C. for 11 years, April is the dryest month, and August and September the wettest months. The mean for the three months

		in.
February, March, April,	is	1·418
May, June, July,	...	2·144
August, September, October,	...	2·620
November, December, January,	...	2 007

The greatest quantity of rain fallen in any month from 1832 till 1842 by the gauge C. was in October 1841, $\overset{\text{in.}}{5{\cdot}50}$; the least for the same period and gauge was in January 1835, $\overset{\text{in.}}{0{\cdot}04}$.

The greatest quantity of rain fallen in any year from 1832 till 1842 by the gauge C. was in 1836, $\overset{\text{in.}}{29{\cdot}83}$; the least quantity for a year was in 1842, $\overset{\text{in.}}{19{\cdot}80}$.

The quantity of rain, January 1832, is estimated.

The quantities of rain for the gauge B., January and February 1837, and for C. in 1839, are estimated from the quantities given by the other gauge for the purposes of summation.

T.C 15. b

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Indexes: Vols. 1 (1783)–13 (1836) in v. 13; v. 1 (1783)–34 (1888) published separately (1 v.) in 1890; v. 35 (1889)–46 (1908) published separately (1 v.) in 1910.

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